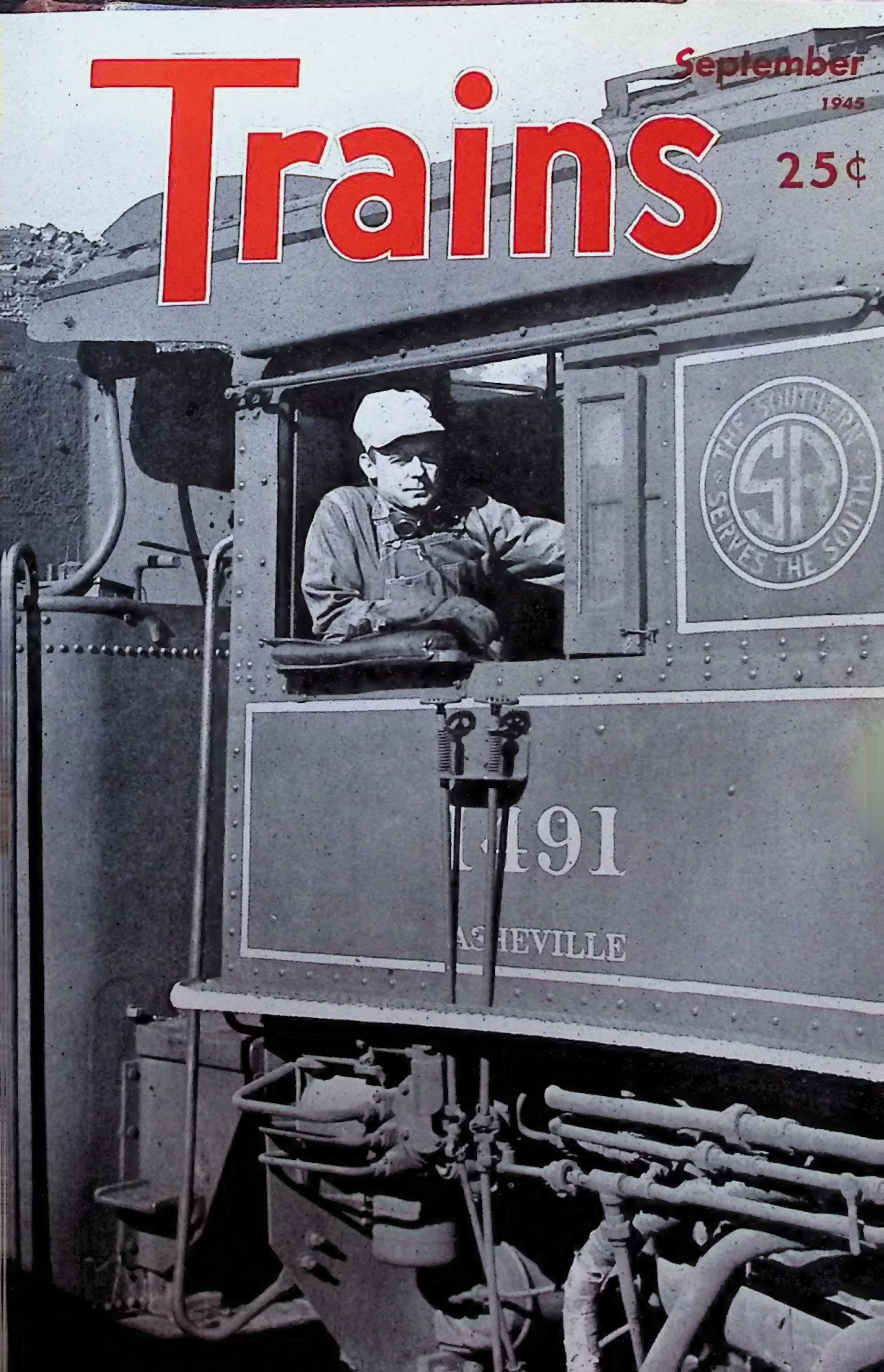
Trains

September
1945
25¢



American fire power is concentrated on the heart of Japan . . . not least among the weapons are the locomotives of western railroads, united in an unrelenting drive to speed V-J Day.

F. C. HOGUE
General Traffic Manager
DENVER & RIO GRANDE WESTERN RAILROAD
Rio Grande Building • Denver, Colorado

Rio Grande

Only fifty cents a day hires a camel!

...*Cheap—until you figure it out*

IN Southern Arabia you can hire a camel, plus the required attendant, for about 50 cents a day.

Sounds cheap! But let's see . . .

If you wanted to move a *ton* of freight, you'd need *4* camels. Total cost per day—$2. Moreover, camel caravans are *slow-moving* ships of the desert—average around 15 miles a day. So your *cost per ton mile* figures out to 13 cents . . . and that's *expensive transportation!*

On the Erie and other American Railroads, where workers are paid many times as much as a camel attendant, and each freight car costs the price of *70* camels, shippers can move freight at high speeds for an average cost of *not* 13 cents . . . but *less than 1 cent a ton mile!*

This kind of low-cost *mass transportation,* created by the private capital of individual investors, enables the Erie and other railroads to meet the needs of our mass production economy. Under the American Way of Life, we have achieved the greatest industrial capacity and the highest standard of living any nation has ever known.

Erie Railroad

ONE OF AMERICA'S RAILROADS—ALL UNITED FOR VICTORY

The editor's section of news and comment:

War's End and the Railroads

THE great show is over. The American railroads have successfully completed the largest transportation assignment ever tackled. In a war of production the railroads were America's assembly line, and they kept the materials of war moving from mine to factory to port of embarkation.

More than three fourths of the total job of intercity transportation was done by the railroads, only about one fourth by all other means of transportation combined. The railroads have been doing a job more than twice that of World War I and doing it with one third fewer locomotives and passenger cars, one fourth fewer freight cars, and 500,000 fewer men. And they did the job far better than 25 years ago. While the statisticians totaled up newer and higher ton mile and passenger mile figures month after month the prewar alarmists who said the railroads couldn't do it were not heard from, and even the railroad men, who had realized the difference between 1917 equipment and 1941 equipment, were astounded.

It was a great show. But most Americans were too sick with war or too busy with war to notice. To them it mattered not that more than 70 trains a day were crowding a single track line through western mountain passes, or that nearly that many trains an hour were following each other's rear end markers over a single eastern four-track main line. They griped a little, a good American custom, at not always getting seats in the trains they had not patronized since the auto came into power. But the very fact that the public took so little notice of the railroads proved how well and smoothly the tremendous task was done.

It was a great show, and the railfans watched it even if they couldn't take pictures. They noticed Norfolk & Western Mallets pushing Rio Grande trains up Tennessee Pass in the Colorado Rockies. They noticed Erie coaches on suburban trains in Birmingham, Ala. They noticed C&NW locomotives on N&W trains in Virginia and Rock Island locomotives on Southern Pacific trains in Los Angeles. They gaped when the proud Pennsylvania Railroad, at W.P.B. direction, built freight locomotives from C&O patterns. And they too griped a little, because the railroads were not allowed to add trains and otherwise furnish more passenger service at a time when people could not travel by highway, for railfans in their enthusiasm think railroads can do anything, regardless of the limitations of equipment.

And as we watched the great show our best stories were the ones we couldn't print because of censorship, the stories that won't be written now because the war is over and people want to be through with it. They are the stories of how the railroads managed to collect unheard of numbers of Pullman cars, in the midst of a wartime passenger car desert, and set them in line at the specified times to move division after division of fighting men. And of how the O.D.T., with its clever system of taking the railroad pulse at would-be bottlenecks (there—that word was plenty taboo until August 14), could sense possible congestion before it developed and start diverting some of the traffic to alternate routes. And of places like Cajon Pass, which were stages for constant noisy action, but which too much resembled bottlenecks to be even hinted at in print.

But now the wartime show is over and the statisticians have added up the figures to show, in cold, expressionless digits, what the railroads did. We much prefer the beat of locomotive exhaust and the sound of the whistle calling in the flag or giving warning for a grade crossing. But for those who like the statistics here they are: More than 31 million troops were transported by rail in organized group movements in the United States. More than 27½ billion passenger miles were produced for the Army alone. Total Army freight moved by rail since Pearl Harbor amounted to 283 million tons, for a total of more than 206 billion ton miles. Total passenger movement in peak year 1944 was 96 billion passenger miles, double the previous (1920) record. Freight movement was 738 billion ton miles, 165 per cent of record 1929.

How was it done if the railroads had so many fewer men and locomotives and cars than in World War I when the job was much easier? What the prewar alarmists failed to recognize was the extent of the technological change on the railroads. To them a freight car is a freight car, a locomotive a locomotive. They overlooked entirely the $10 billion expenditure for railroad improvements and modernization between 1923 and Pearl Harbor. They overlooked the difference between a 1917 Mikado and a 1941 4-8-4. They overlooked the difference between a 30-ton wood box car and a 50-ton steel box car, and between modern bearings and modern air brakes and the 1917 variety. They overlooked the almost fantastic reduction in hot box delays and the virtual elimination of many such minor items as delays to repair burst air hose. They didn't know about C.T.C. and cab signals. Yet it was all these things which allowed a modern freight car to turn out twice as much transportation service per day as the average of 25 years ago, and a modern freight train to do nearly two and one half times as much work per hour. This the railroad men knew and yet even they did not imagine the tremendous extent of the job they would be asked to do, nor could they forsee the restrictions which

Trains

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W.P.B. and W.M.C. would place in their way. But they did what they were asked to and did it so well the public hardly noticed.

What now?

The end of the war brings to the railroads continued restriction while competitive methods of travel are quickly released from restriction and allowed to get business which might otherwise go by rail. A number of O.D.T. railroad orders are still in effect, chiefly the five-day Pullman reservation rule and the other against Pullman runs of less than 450 miles. On the other hand the air lines have received many of their planes back from the government and gasoline rationing has been ended.

The necessity for continuing rail travel restrictions is not doubted, for the railroads have been doing the bulk of the wartime transport job, and this job is not done until the troops are all home. Passenger travel will continue to be congested for at least several months. By that time troop movements will slow up and delivery of new passenger cars will start.

So by their very essentiality the railroads are penalized in getting a competitive start for civilian business. It is the same situation as during the war, when the airlines, because of their small volume of business, were able to maintain a priority system and advertise for business, while the railroads were doing such a tremendous business that a priority system was unthinkable and so railroad traffic advertising was prohibited. One railroad passenger man said, "If they would only let us advertise we could tell the public which of our trains are least crowded and help the situation out."

What railroad passenger traffic will be in the future is still an open question. While the two O.D.T. orders remain there has been some modification in the order which prohibited the operation of extra trains. As long as troops must be transferred the Army will still have first call on Pullman cars. There seems no accurate way of determining how many sleepers it will need.

The first few days after victory travel surged upwards and the first full weekend was on par with the previous one. The real test will come over Labor Day. A decrease of less than 10 per cent below last year would be encouraging. But what happens in these first few months will be no long term indication, for many automobiles still have old tires and as tires and new cars become more available the private automobile will again become the greatest competitor for railroad passenger business.

The many new trains on order will not be on the rails for some time, and it will likewise take time for the improvements in schedules and service which will follow release from war traffic. The first new passenger cars will be the stainless steel coaches now being built by the Budd Company for the Santa Fe. Work on these was interrupted by the war, and the Jap surrender released skilled manpower and materials so that Budd Company production of cars is accelerating. No further delays are anticipated and these first cars should be out of the new Budd plant in Philadelphia this fall.

Pullman-Standard Car Manufacturing Company has production under way on $78 million worth of freight and passenger car orders. Prefabricating of some passenger equipment is under way, and the first deliveries are due in early 1946. Availability of some materials is still doubtful. Production of railway car plants in Canada is still subject to scheduling by the government and no passenger cars have been alloted.

In the freight field prospects are good for at least the next 12 months. War traffic will be replaced by a large volume of civilian goods and the materials and machinery for new factories which have been postponed by the war. The immediate stoppage of war work will mean a temporary drop of about 30 per cent in carloadings. Coal traffic will remain about stationary. Steel will probably be at only about 85 per cent capacity until the reconversion period is over. The Quartermaster depots will furnish traffic for 12 to 18 months since their activity will remain as long as there is a sizeable Army. Export traffic will be high, and much new traffic will be created by the state and federal construction projects, new roads, bridges, parks.

One problem the railroads will not have is reconversion. They manufacture only one commodity, transportation, and their only postwar problem is the continuing and continual one of how to improve transportation service and lower the cost at which mass transportation can be produced.

Record Troop Movement

The largest single railroad troop movement of the war came the evening of August 3 and the morning of 4 when 20,000 returnees left Camp Kilmer, N. J., with first class train accomodations. Thirty-one trains, including 331 Pullmans, 100 coaches and 41 kitchen cars, were required for the nationwide move which began at 8 p.m. on

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the 3rd. The last train pulled out at 4:39 the next morning, one minute ahead of scheduled time. No soldier traveling more than 12 hours was without a Pullman berth.

In the week ended August 3, considered to be a fairly typical week, according to information received by the War Department, there were 1238 organized troop movements on the railroads in the United States, involving transportation of more than a quarter million men. Of these movements 726 were in sleeping cars, 512 in coaches. Most of the coach movements were for short journeys.

Donald W. Furler, 94 W. Main St., Glen Rock, N. J.

The Baldwin experimental Diesel road locomotive running on the Erie Limited.

Photography Restrictions

As of August 23 restrictions on railfan photography still remained in the form prescribed July 26, before the end of the war, but relaxation was expected shortly. The July 26 bulletin of the A.A.R. advised railroads that the War Department had no objection to photographing of rail facilities by "railroad enthusiasts" *provided* that the railroad companies discharged their primary responsibility for the internal security of their facilities, including control of visitors, and that the railroads:

a. Made reasonably sure that the "enthusiasts" are as represented and are acting in good faith.

b. Permit no activity which will interfere with normal operations.

c. Permit no photographing of: war materials, troop movements, or anything disclosing military information; sites, structures, equipment or the like which might conceivably be of interest to the enemy or which are specifically designated by law or regulation as not to be photographed; aerial or panoramic views which may have same effect except as specifically authorized by the War Department.

The War Department prohibits any photography not definitely authorized in advance by the railroad company.

Santa Fe Into St. Louis

The Santa Fe is taking steps to enter St. Louis from Kansas City over the existing lines of the Alton (to Mexico, Mo.) and the Burlington (Mexico to St. Louis). The plans contemplate joint operation by the Santa Fe and the Burlington over the route. Through cars would be run over Santa Fe from St. Louis to the coast. The Santa Fe board of directors has authorized the filing of necessary applications with the I.C.C. and the taking of all other steps to carry out the plans.

Use of the Alton's Kansas City line by either Santa Fe or Burlington appeared likely when Gulf, Mobile & Ohio's plans to buy the Alton were announced several months ago. The GM&O would have most use for the St. Louis-Chicago line and less use for the Kansas City stem. The announcement followed a meeting of Santa Fe, Burlington and GM&O executives in St. Louis. Burlington has been using the joint route with the Alton for some time, and Santa Fe, which does not now enter St. Louis at all, first considered such a joint route some 30 years ago.

Railfan F.D.R. and His Train Trips

Now some of the details of the late President Roosevelt's train travels can be told. Very few people realized that F.D.R. was somewhat of a railfan and took great interest in planning the routings to be used by his cross-country specials. His rail travel totaled as much as 10 times around the world and he knew the railroad geography of this country with a detail that never failed to impress the railroad passenger men with whom he dealt. In spite of the fact that the White House maintains a competent transportation department of its own, he always filled in himself the diagram card designating space in his car and would specify the principal routes and connections.

Baltimore & Ohio General Passenger Traffic Manager H. E. Simpson and B&O General Passenger Agent D. L. Moorman had many contacts with the late president, for he often used B&O out of Washington and the originating road was in charge of the special train for its entire trip. Both men say, "His intimate knowledge of towns and cities in all parts of the country and of the rail lines connecting them was nothing short of amazing."

"President Roosevelt liked his train to travel slowly," Mr. Moorman recalls. "He often said to me, 'I love this country of ours and I want to take the time to see it.' He gave us full authority to speed up at night when he was sleeping so as to make up time."

The late president was always a considerate traveler. Mr. Moorman remembers one incident in particular. "We were moving the president out of Jersey City and as usual were trying to put on our best show for him. One of our Diesels had been assigned and had undergone rigid inspection, but just at the moment of departure it blew all the motor fuses. We were held up 30 or 40 minutes until a steam engine could be coupled on to move the train, Diesel and all. It was just one of those unpredictable things that couldn't be helped, but that was enough to give any railroad man a very red face.

"The newspaper boys on the train learned of our plight and had a field day kidding us about it. The president heard them and sent

for me. Not knowing quite what to expect, I went into his car.

"'Dan,' he said with a smile, 'the only thing that worries me about this delay is that you and members of the crew may be disturbed about it. I don't want you to worry. The important thing is that you always take me where I'm going and bring me back safely and comfortably. I'm getting work done right here and it doesn't make a bit of difference what time we arrive back in Washington'."

Most traveled presidential routes were those between Washington and Hyde Park. Sometimes he went via the Pennsylvania through Manhattan, over the Hell Gate Bridge and up the NYC's Hudson Division to Hyde Park. More often, and especially in wartime, he traveled over the B&O from Washington to Philadelphia, then Reading to Bound Brook, Central of New Jersey to Jersey City, National Docks Railroad for a short stretch to the West Shore Railroad, and then the West Shore to Highland, N.Y., across the river from Hyde Park. The funeral train used the Pennsylvania and Hell Gate Bridge route.

Contrary to public impression, no pilot locomotive preceded the presidential special, but elaborate precautions were taken for every trip. On the Jersey Central, for instance, all freight trains were required to be at a stop half an hour before the special passed and to remain standing until the special was by, regardless of which track the trains were using or which direction they were moving. All switch engines were also halted 30 minutes in advance. Passenger trains were halted a few minutes before the scheduled passing time and remained at a standstill while the special went by.

Officials Rode Train

The special was usually pulled by a B&O steam locomotive with W. E. Carroll of Baltimore as engineer, and included about seven Pullman cars. The road foreman of engines usually rode the cab, and several division officials were always on the train to make special arrangements in case of emergency. Before each trip a staff meeting of key supervisors was held.

Engines were given specially selected coal, the entire right of way was inspected by supervisors, master carpenters, bridge inspectors, track foremen and track walkers, and special protection was provided at non-protected highway crossings. A telegraph lineman rode the train equipped with portable telegraph and telephone sets and blueprints to locate correct line wires.

Wartime Trips Different

During the war many presidential trips about the country were not preceded by all this fanfare. The specials were arranged as ordinary "main" (troop) trains and few railroad men knew they had handled the president until announcement was made in the press, sometimes weeks later. Soldiers detailed to guard stations and right of way were told merely that it was a drill for protection of an important movement that might be made at some future date and that after a certain time the drill would be over. In the meantime the president passed. Certain cars were permanently assigned to this special service, but the names or numbers were changed between trips to prevent their being too readily recognized. On the Mexican trip all identifying marks were completely removed. This caused much confusion among yardmasters who checked the consist.

A passenger traffic manager for a south-central road almost committed lese majesty while one wartime trip was being planned. Washington phoned, asking for a schedule for a certain "main" train from one city to another on this road's lines. The arrival time was given and the delivery time at the other end of the run was necessary before further scheduling could go ahead. No answer was forthcoming. Another phone call met the response, "We aren't going to get motive power and crews out there for any 'main' train without a written confirmation." Washington said, "You'd better get motive power and crews out, and give us the time over your road pronto, or you'll have a new general manager. This is one 'main' train that won't be confirmed in writing but you be ready for it. It's no bluff." The general manager himself was waiting when the special pulled in at the engine change point, but it was weeks later before he learned why that particular "main" was so important.

A. C. Kalmbach.

Running Extra

After carefully finishing up the September issues of TRAINS and THE MODEL RAILROADER our editorial department went on vacation the first week in August, not quite expecting that they would hardly be settled back in the editorial easy chairs before his nibs, the Son of Heaven, would throw in the royal sponge. After the din had quieted down and the confetti had been swept up, we held such parts of those carefully finished September issues as were not already to press and started a job of editorial remodeling. Caution was thrown to the winds and the telephone bill was increased several hundred dollars with long distance and telegrams. Result was a complete new set of news pages for the front end of TRAINS, reflecting the new developments caused by war's end, and a precedent setting survey in MODEL RAILROADER of what model railroad manufacturers are doing now that they are not restricted.

Additional information for Trains Contest—

You still have until September 15 to mail your entry for the $100 prize timetable contest announced in our last issue. If you do not have the rules send for them. Also remember:

Every state capitol can and must be reached by railroad. A mixed train is the only service available to Santa Fe, N. M. Carson City, Nev., is served by mixed train and gas-electric car on alternate days.

Some capitols are served by railroads at more than one station. Some of the stations do not bear the name of the city. These include Montpelier Junction, Vt., East Olympia, Wash., North Topeka, Kan. All stations used at capitols must be within the local transportation area.

Labor Day, September 3, is an official holiday; but Armistice Day shall be considered as a working day. Disregard V-J Day when and if proclaimed.

Scheduled bus service is not to be used.

The two hours spent in a capitol must be consecutive and on the same day.

Connections between Hoboken, Jersey City, and New York City stations can be easily made by using the Hudson & Manhattan which reaches all railroad stations except Grand Central, three fourths of a mile from the H&M's 33rd Street station. Add the headway to the running time shown in the timetable to compute the time between stations when using the H&M.

If these interpretations make a difference in your running time you still have time to revise your schedule. There is no limit to the number of entries you may make.

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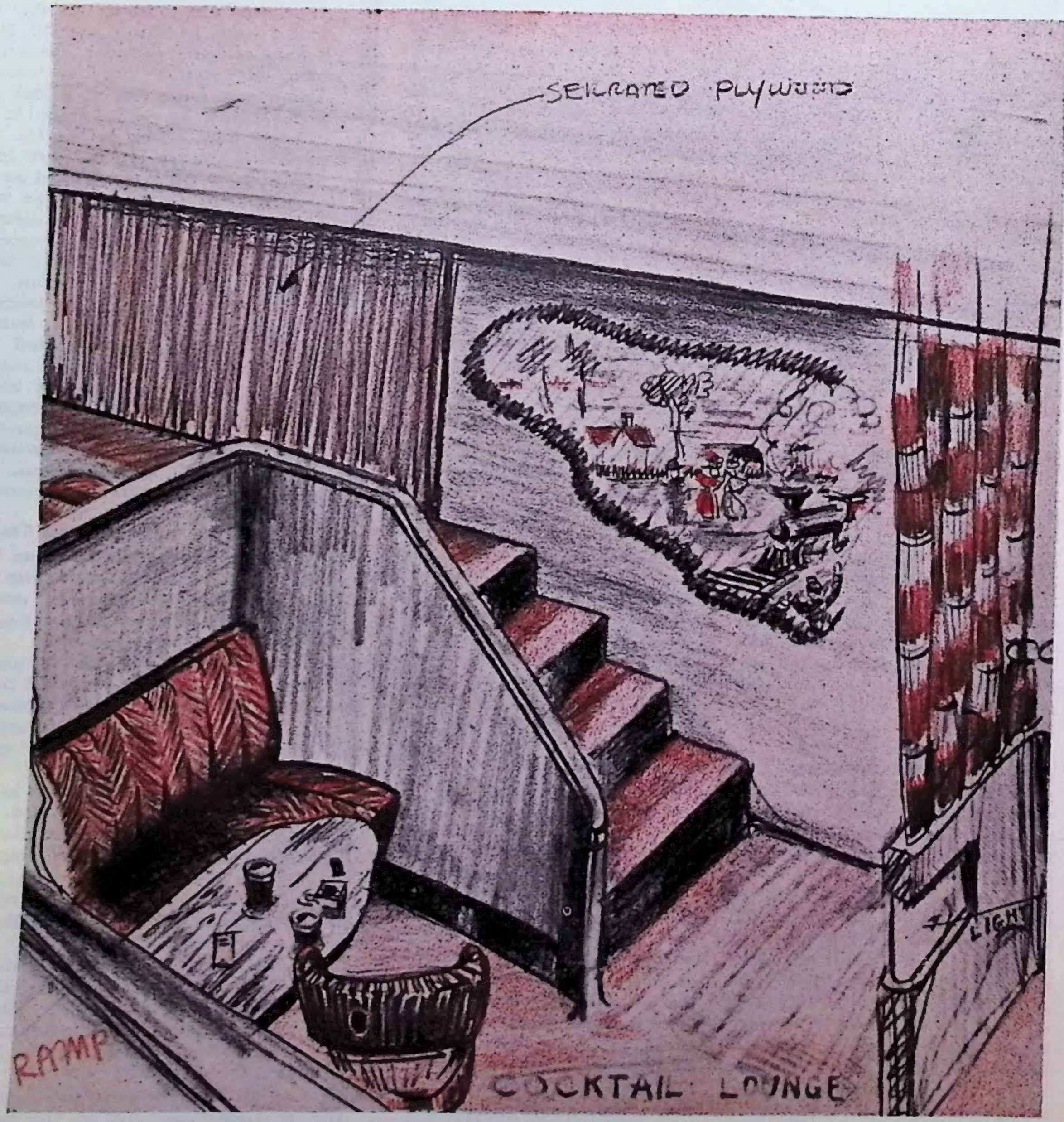


The use of five different floor levels adds variety and interest to the interior of the revolutionary Astra Liner lounge car proposed by Electro-Motive. A designer's sketch of one corner of the cocktail lounge shows how intriguingly different is the interior. This car is best explained by the photo of a model car with roof removed (page 14).

The railroads of tomorrow will be as different from those of today as the streamliners are different from the trains of World War I. This series will tell some of the revolutionary changes which are coming. Next article, "Gas Turbine Locomotives," will be published in the November issue of TRAINS.

Postwar Parade: I

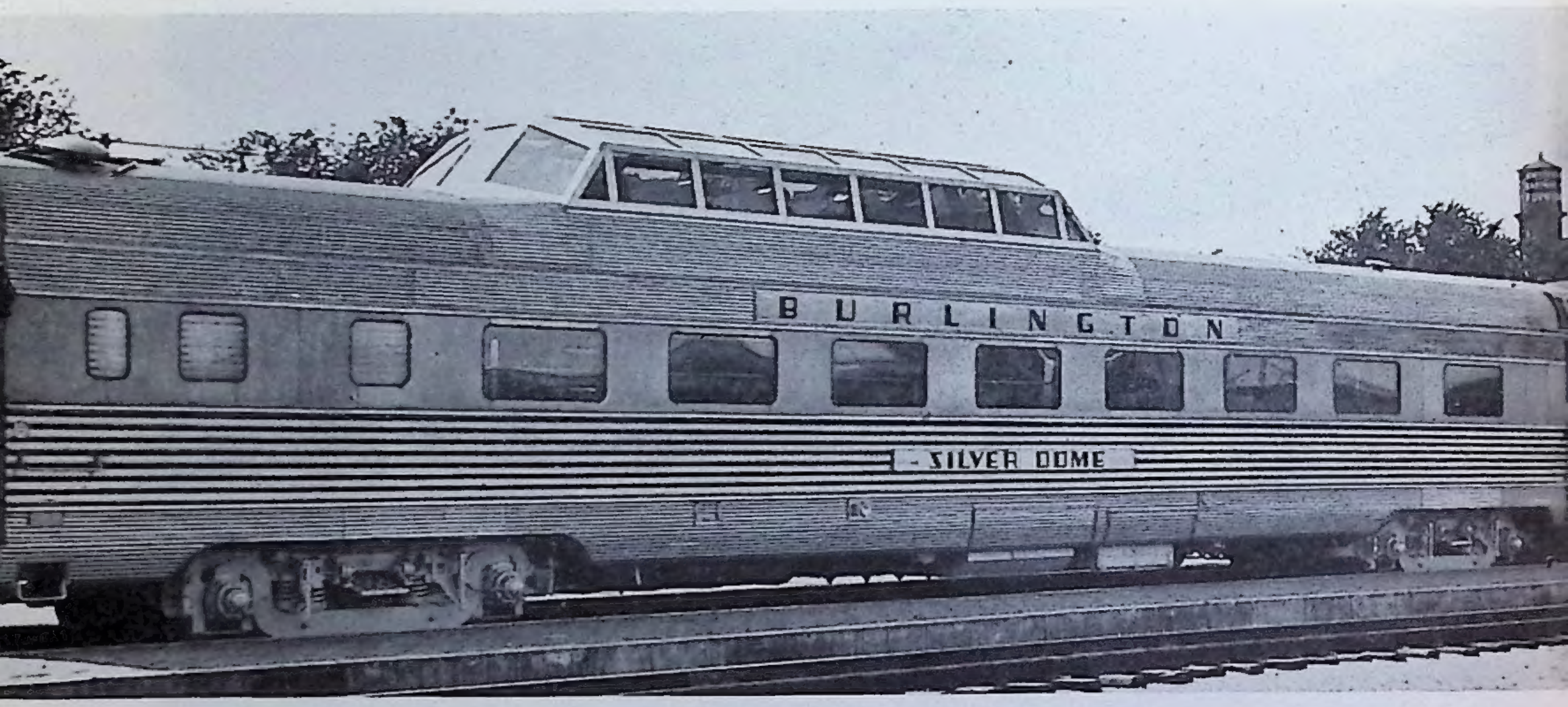
Burlington's Vista Dome car and Electro-Motive's Astra Liners are forerunners of the radically different designs we may expect in postwar passenger cars

BY A. C. KALMBACH

THE Burlington Route is now operating in experimental service a stainless steel coach remodeled to incorporate the most radical innovation in railroad passenger travel since air conditioning. A glass enclosed upper deck seating 24 passengers has been built into the roof of the car. This "vista dome," as the Q calls it, allows a view completely around the horizon and upward as well. The only thing comparable is the view from a Diesel locomotive cab, and the dome is better.

The center aisle of the upper deck has full headroom, but the seats are somewhat elevated above the aisle, and the lower floor has side aisles with full headroom under the upper deck seats. Under the depressed center aisle of the upper deck the headroom is shy, and in this central space of the lower floor seats have been placed facing outward. In postwar cars of this type the lower floor of the car will be depressed between trucks to allow more headroom under the upper deck, but the Burlington's experimental car had to be done as a reconditioning of an existing car because of material restrictions, and a lowering of the floor was of course impossible.

The original car provided seats for 52 passengers, not counting seats in the women's lounge and the men's smoking room. The revised car has seats for 58 passengers. Height of original car from rail to top of roof was 13 feet 6 inches. The height with dome added



is 16 feet 2 inches. Clearances are ample to allow this car to operate almost anywhere. The glass-enclosed air conditioned upper deck is about 22 feet 6 inches long and the full 10 foot width of the car. The passengers are heads and shoulders above the roof line, permitting them to see forward over the train. Owing to the unavailability of curved glass or suitable transparent plastics in wartime, the windows and roof of the dome are constructed of double-pane glass. The outer pane is a heat and sun-ray resisting glass separated by an air space from the inner pane of safety glass.

All lights in the dome except those lighting the aisle floor can be extinguished at night so passengers will be able to see the right of way by the light of the headlight or look at the scenery in the moonlight.

For the present at least, the Burlington does not plan to charge any extra fare, although officials are afraid nearly everyone will want to ride upstairs and some method will be needed to apportion the preferable seats. The car is being tried on various trains, including the *Exposition Flyer* through the Colorado Rockies and the Feather River Canyon, to test it under varying conditions. Postcards are handed to passengers on which opinions of the dome can be expressed and sent to the management.

PRESIDENT RALPH BUDD and other officials of the Burlington got the idea of the dome car when they were ushered last spring into an old automobile showroom in Oak Park, Ill., which had been remodeled into a display room of new ideas in railroad passenger equipment developed for Electro-Motive by styling engineers of General Motors.

Here Ralph Budd, and the presidents of 55 other railroads at other individual showings, sat down in a darkened room and watched a huge aluminum bound

Exterior of display model for astra lounge car which Electro-Motive will build.

The Burlington's Vista Dome car was the first in actual service to incorporate the most outstanding feature of the Electro-Motive design proposals, the observation dome built into the car roof. Restrictions prevented the use of curved plastics for the dome, and the car itself was an existing one so the floor could not be lowered between trucks.

book open to show in words and pictures an entirely new concept of railroad car design. In another room Mr. Budd saw the designs in three dimensions by means of large scale models. The roofs could be removed to permit study of the interior arrangements. The walls of the display room were decorated with dozens of colored sketches showing scores of clever alternate arrangements and ideas that could be incorporated into the railroad car of the postwar era.

Most startling feature of all these car designs is the upper deck dome which Mr. Budd promptly adopted for his experimental Vista Dome car. Electro-Motive calls its new style train the Astra Liner. Neither General Motors nor Electro-Motive will go into the car manufacturing business; instead the designs were prepared as a very far-sighted move to help sell Diesel locomotives. Electro-Motive offers the ideas free to any railroad or car manufacturing company as a means of attracting more passengers to the rails. That's where the more locomotives come in.

THE Astra Liner designs were developed under the direction of Harley Earl, vice president of General Motors. Artists, sculptors and designers of the styling section were given a free hand to suggest improvements in train travel that they themselves would enjoy as passengers. The results were screened through an engineering committee which accepted those deemed in accordance with Interstate Commerce Commission requirements and susceptible of successful engineering and operation. Contracts provide for a four-car demonstration train.

The four types of cars which will be built and demonstrated are the coach, diner, sleeper, and observation car. All will have revolutionary changes in shape and interior arrangement, as well as in such details as seats, berths, entertainment facilities, and sanitary provisions. The designs are based upon two major inherent advantages in railroad travel over all other forms of transportation between land points: First, the better opportunity to view scenery from a railroad car; and second, the greater opportunity to provide more comfort and enjoyment due to the less severe restrictions

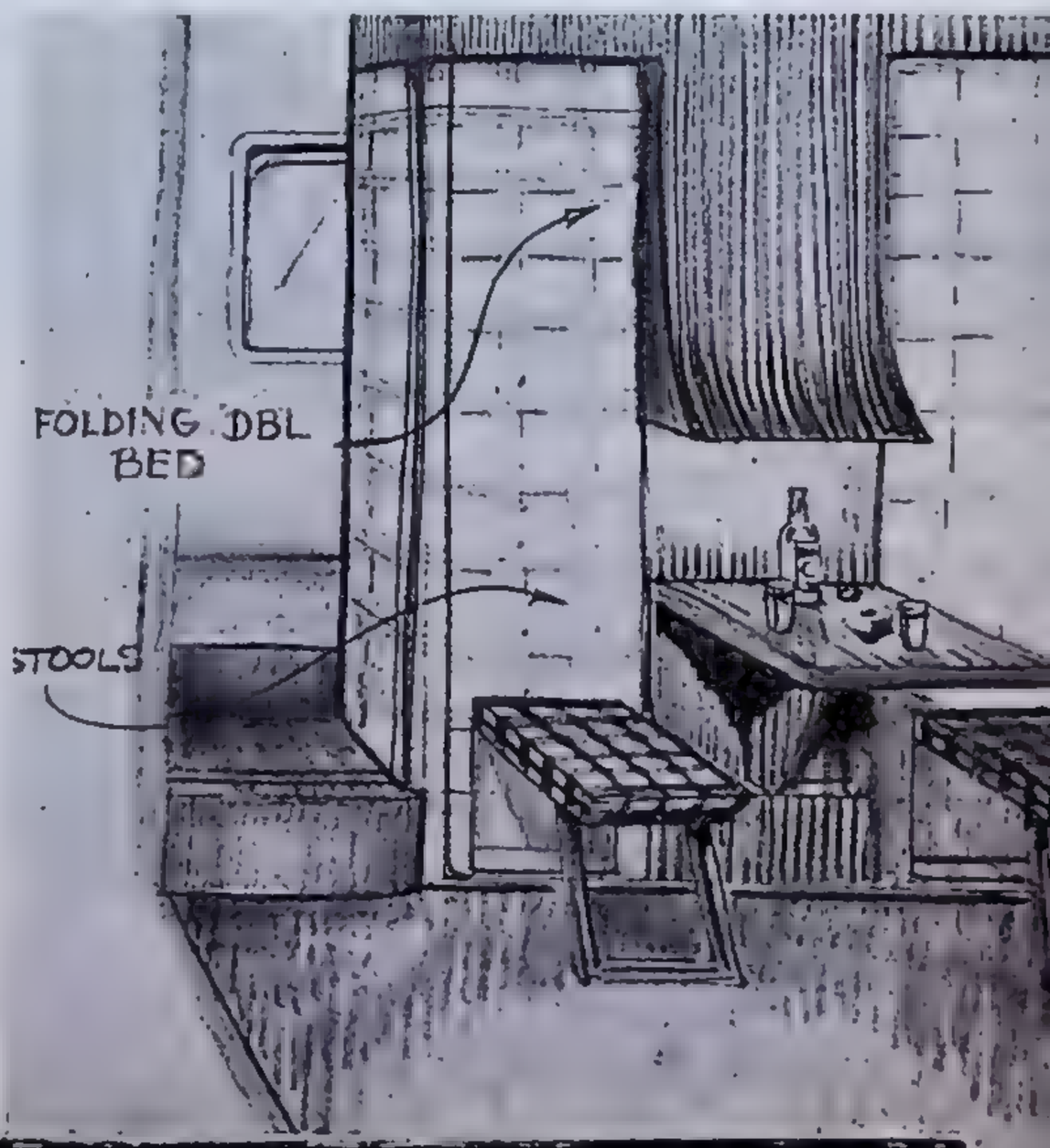
upon size and weight in a railroad passenger car than in airplanes, buses and private automobiles. For the same reason the railroad car designer also has greater opportunity to achieve useful and beautiful effects with new postwar metals, plastics and textiles.

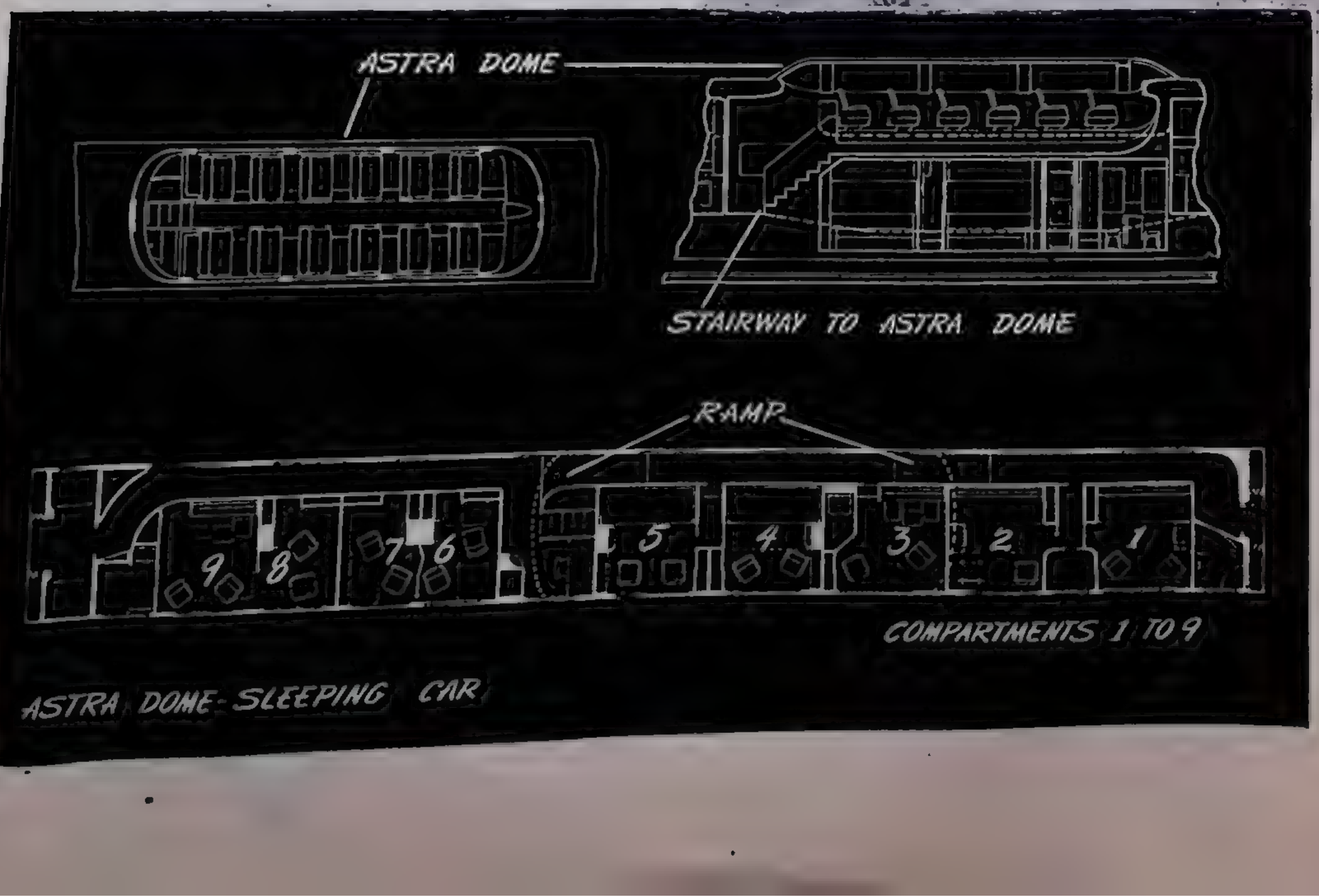
A RESERVED seat in the astra dome of the sleeping car goes with each space in a room on the lower deck. In the scale model of the sleeper prepared by the GM designers the astra dome has 24 seats. This feature adds the charm and luxury ordinarily associated with a deck chair on an ocean liner, with the greater attraction that the scenery from a train is much more interesting. Laminated glass, proved under gunfire in windshields of thousands of war planes, is used for the gracefully curved roof of the astra dome.

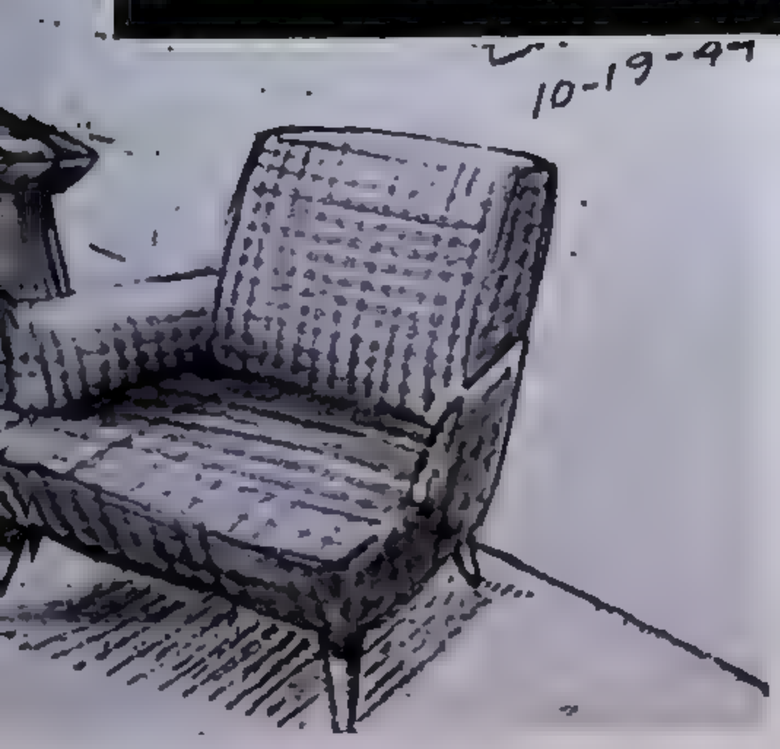
Three bedrooms are placed beneath the dome on a lower level than the rest of the car floor. The usual side aisle, leading to the rooms, is depressed in the section underneath the astra dome to provide six feet six inches head clearance. The three rooms beneath the astra dome are reached from this depressed portion of the aisle by two steps downward.

Passengers mount to the dome by a stairway that leads upward from a lateral hallway placed between rooms about one third of the distance from one end of the car. The stairway is deliberately made narrow enough so that passengers will naturally grasp handrail for ascending or descending. Steps are illuminated like steps in modern theaters.

The small space at the end of the hallway leading to the stairway, between the stairway and the outer car wall, is occupied by a chair and desk which serve as the porter's or conductor's headquarters. This solves the vexing problem of providing the conductor a permanent place in which to do his necessary paper work.







The sleeping car in Electro-Motive's demonstration Astra Liner will have notable innovations in all types of rooms, but three types of rooms are outstandingly different. One of these is the three-room suite in the end of the car which includes a shower and toilet room, a double bedroom and a single bedroom. The single room can be closed off for separate occupancy. For daytime the double bed folds into the wall opposite the window. With the partition folded back the suite forms a living room almost as large as a small hotel bedroom. A small table and two seats unfold from the bottom of the bed. Single bedrooms have a four foot wide window, other rooms a five foot window. Wide scenic panels around the walls coincide with the window levels and add to the feeling of spaciousness. The diagrams of car arrangement give a clear idea of how the dome is kept within clearance limitations.

THE design for the Astra Lounge car suggests one of the most interesting vehicles in the world. It should give passengers such a variety of delightful little surprises that they will never have a dull moment, even though on the train for two or three days.

The lounge car has five levels: the regular car floor level, a center ramp, a lower cocktail lounge, a rear observation lounge and the astra dome. This permits a fascinating array of attractive sights within the car itself, to say nothing of the enjoyment of moving into several totally different atmospheres by merely stepping around a gracefully curved corner or going up or down a few steps. The car has 75 comfortable places to sit, at least 40 of which are movable.

As in the sleeper, the dome has 24 seats and is in the roof approximately in the center of the car. The seating may be varied. It has been suggested that in the lounge car it would be possible on transcontinental trains to equip the dome with seats for sun bathing or napping.

The space beneath the dome is used as the lower level cocktail bar. This space is given an intimate air by a low ceiling and built-in nooks.

A more formal cocktail lounge is located on the regular car floor level at the forward end of the car. This room is entered either from a door at the forward end of the car or by three

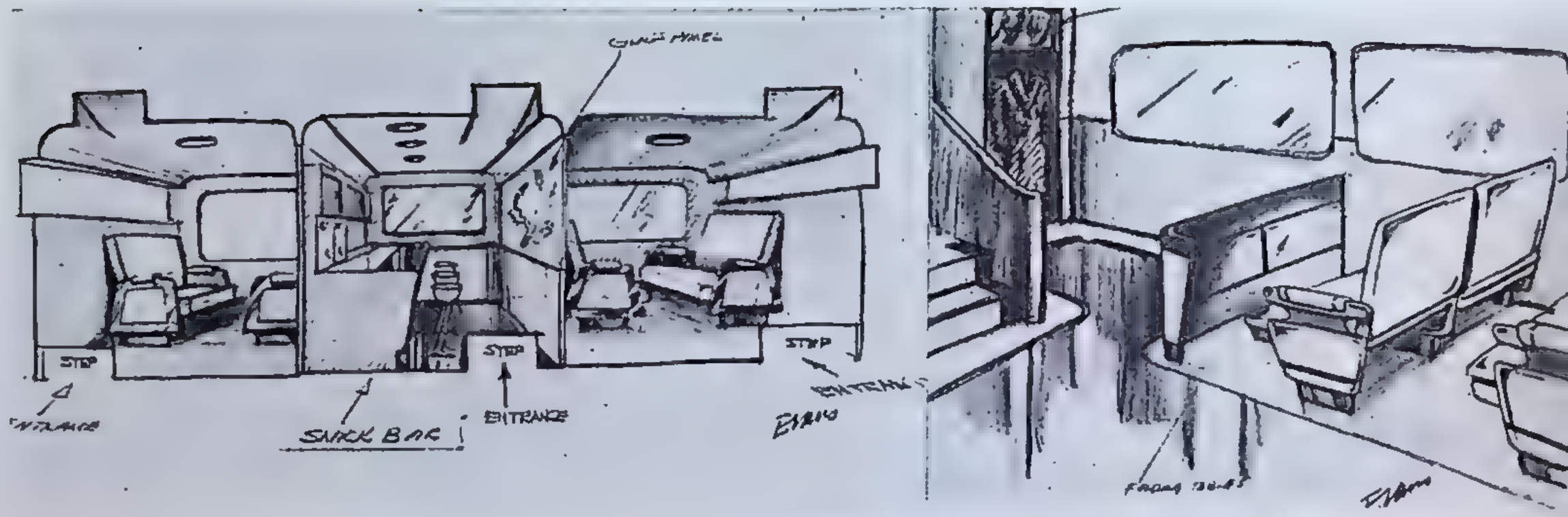
Railroad executives saw this large scale model of the Astra Liner which Electro-Motive will buy. Car roofs are movable so interior arrangement can be studied. The lounge car with its five floor levels is most interesting. The floor of the observation lounge is slightly above standard level; the aisle alongside the cocktail lounge is slightly lower to provide headroom under the dome, and the cocktail lounge is still lower to provide for the aisle in the dome. The dome and the floors at standard level at each end of the ramp provide two other levels.

steps that lead up out of the lower cocktail lounge.

The observation lounge at the rear end of the car has a floor 18 inches higher than the regular car floor level. Windows are unusually wide and deep. The rear cockpit has only two small pillars to obstruct rear view and the sloping, rounded rear windows permit exceptional upward view. Most of the furniture in the room is movable, permitting passengers to form their own groups as in a private living room. The astra dome stairway leads from this lounge.

In the coach extra space gained by the addition of the dome may be used, of course, to increase seating capacity. This arrangement might be followed for suburban or other short run trains However, use of the space under the dome for special facilities for added comfort and enjoyment of the passengers is suggested for those runs taking several hours or overnight.

In the women's and children's car the under-dome space is divided between an unusually large women's lounge and a nicely isolated children's playroom. Heavily padded quilted

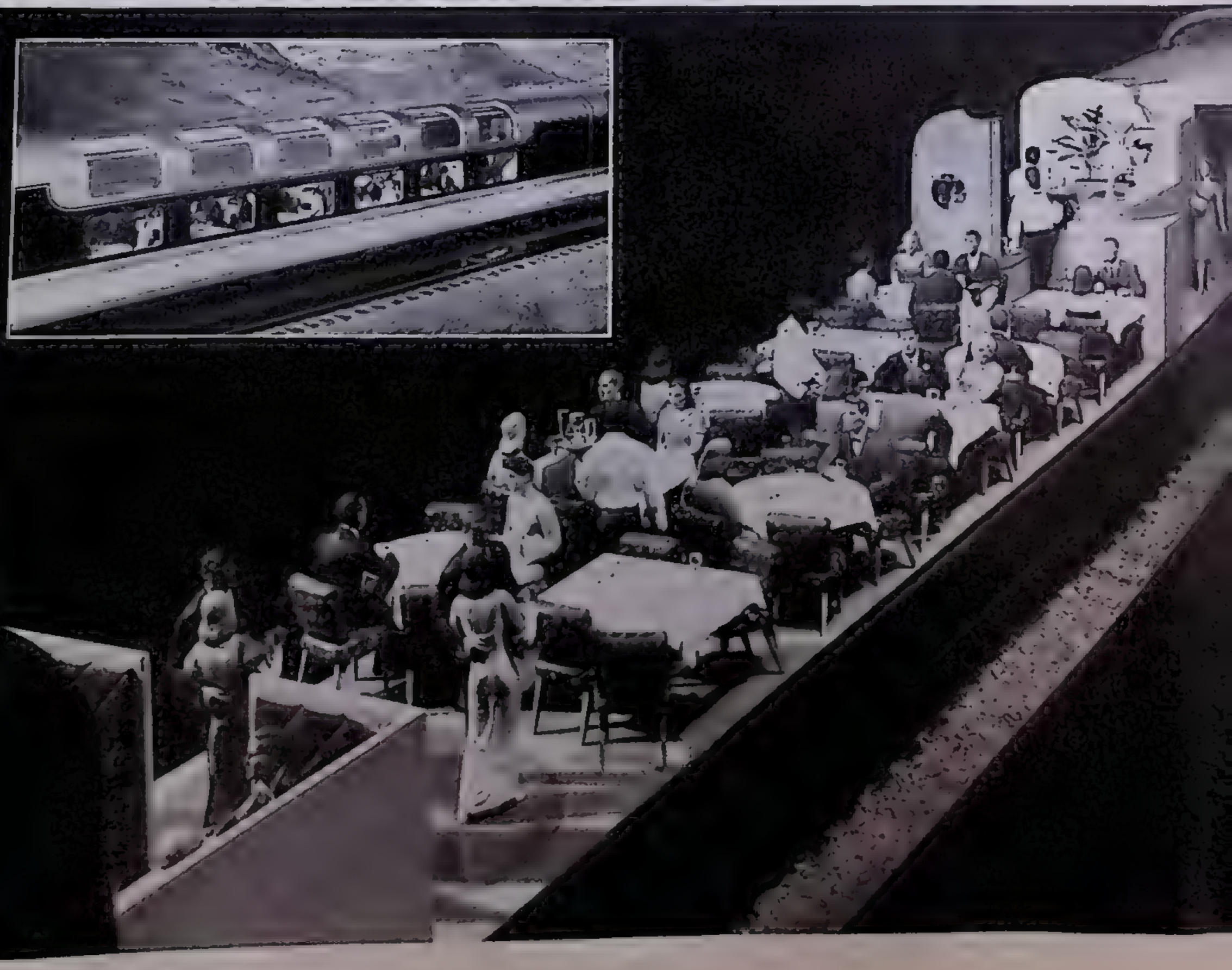


The space under the dome provided one of the chief designing problems, and at the same time one of the greatest opportunities for originality in the Astra Liner cars. Since the aisle had to be at one side to provide headroom a series of rooms was indicated, with a step down from the aisle. In the sleeping car this was easy. Bedrooms were simply worked out to fit the space. But in the coach design many ideas absolutely new in coach travel were developed, such as the family rooms and the snack bar illustrated above: Photos below show the dining car. The one to be built will have a dome with tables on both levels.

sides for the playroom and playthings devoid of sharp corners are suggested.

A diaper changing table unfolds from a wall. A high-chair, securely fastened to the floor, sits in a corner of the lounge. Mothers may be free to perform their own toilet by strapping babies in the high-chair.

Space beneath lavatories would be enclosed to cover what sometimes becomes unsightly, refuse catching plumbing. The fronts of these



enclosures would be hinged at the bottom. Slots at the top would receive soiled towels. The towels would fall into a large disposal rack on the inside of the hinged panel.

Another suggested use of the under-dome space is to divide it into "family coach sections." These would be private rooms, equipped with five reclining seats. A family party could have such a room by payment of a slight extra charge. Odd spaces left over between family coach sections could be utilized as automat snack bars or card rooms.

Roll-away coat and hat racks that disappear into a nook have been designed. One new type of coach seat suggested would have a shelf underneath the seat for a suitcase.

Two new types of dining cars have been suggested by the General Motors styling section.

One, which has the same contours as the present steel roofed cars, is distinguished by upper wall and rounded roof construction of the same thermopane glass used in the astra dome. The glass portion of the roof extends over the section of the diner occupied by tables. Plastic shades may be adjusted underneath the glass roof sections in case sun glare becomes objectionable. This gives the diner the characteristics of a fashionable out-of-doors cafe, or of a roof garden.

Two end tables may be removed and folded into slots in side walls. This leaves an intimate space in which five or six couples may dance.

Linen storage space and partitions are so arranged at the kitchen end of the diner that waiting passengers may see the table seating situation without crowding into the aisle and getting in the way of waiters passing to and from the kitchen. A small service bar is located at one side of the entrance to the table space. A cocktail lounge waiting alcove seating 10 persons is provided at the end of the diner opposite the kitchen. The partition separating this space from the table space is low enough to permit occupants to see the table seating situation without getting into the aisle.

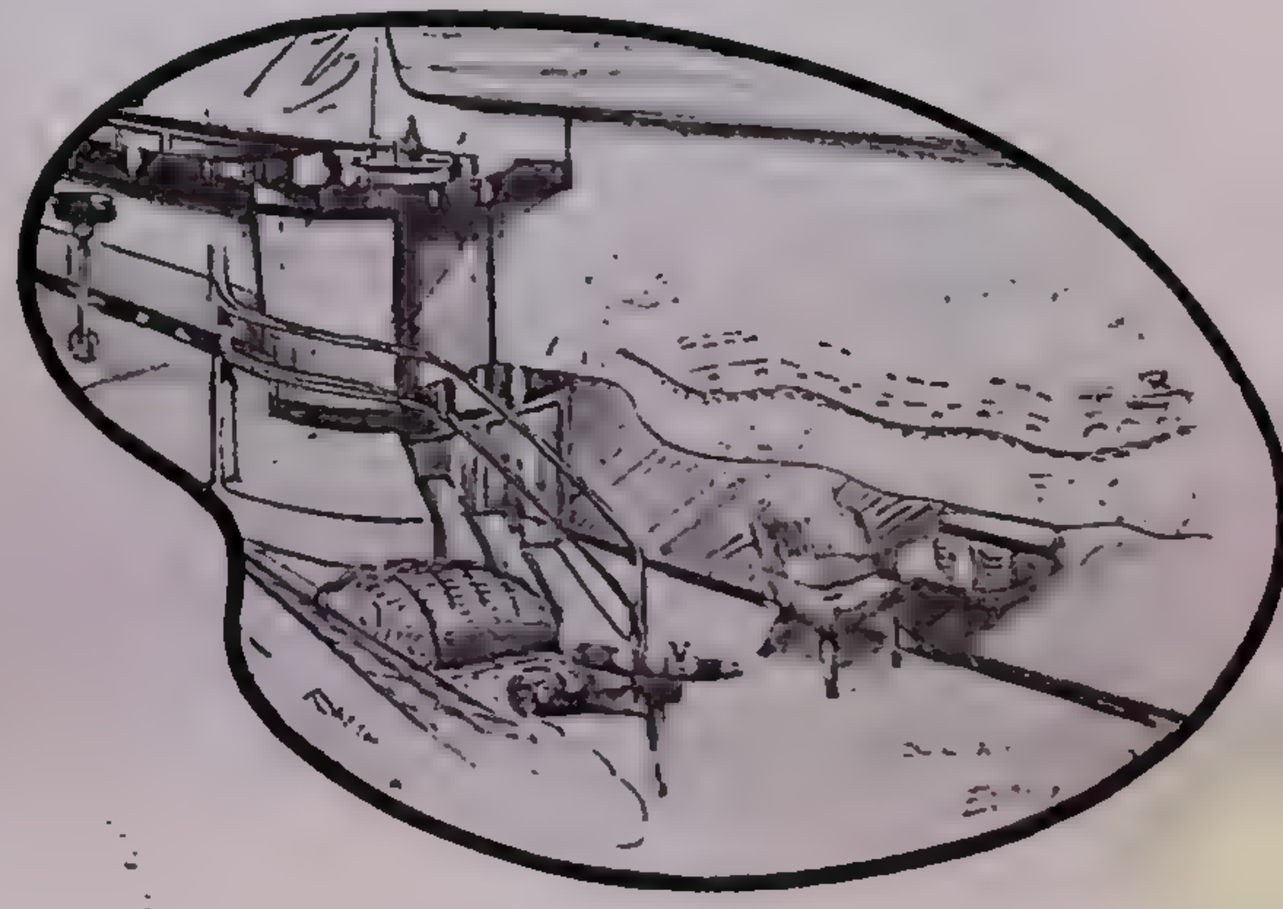
The other diner, the type to be included in the Astra Liner which will be built, departs completely from conventional diner design.

This startling new car will have an astra dome that will serve as part of the dining space. Tables will be located in both ends of the car and in the dome, while the kitchen will be located in the depressed central portion of the car underneath the dome. A service pantry will be adjacent to the kitchen toward one end of the car and on the regular car floor level.

In addition to its appeal as a highly unusual place in which to enjoy food this car will have a number of practical operating advantages. It will seat at least 10 more persons than the present diner and all diners will have more "elbow room." Serving will be expedited by the service pantry arrangement. Whereas dining car waiters now go back into the kitchen for food, they will have their orders filled from the service pantry over a counter in the Astra diner. This counter is located in a passageway that runs along a car wall, giving easy access to the dining rooms in both ends of the car. The waiters serving the astra dome will dispatch used dishes and receive food via a dumb waiter from the kitchen immediately below.

Sounds a bit fantastic, doesn't it? But it is all within the limitations of sound railroad engineering practice. It is simply the result of turning loose on railroad car design men who have been successfully catching the public attention with auto, refrigerator, and appliance designs.

Add to the known advantages of railroad travel—reasonable speed, economy, reliable all-weather performance, and plenty of room—the spicy seasoning of modern design and there is every reason to believe that wartime passenger loads may be carried over into peacetime years. The General Motors designs created to help encourage the sale of Electro-Motive locomotives are only one item in a postwar parade of railroad progress which is now being developed by the country's railroad equipment manufacturers and by individual railroads. The next article in this series, to appear in November, will be about the newest of the new types of motive power, the gas turbine locomotive. Later articles will discuss other postwar designs and possibilities.



An Electrified Branch Line

PHOTO STORY BY JAMES D. BENNETT

IN THE extreme southern foothills of the Berkshire Mountains, in Southwestern Connecticut, is the pretty residential town of New Canaan, 41 miles out of Grand Central Terminal on the New Haven. It is at the end of an 8.3 mile electrified branch line which meets the main line at Stamford, an important intermediate stop on the electrified four-track New York-New Haven main line.

This branch was electrified in 1899, almost 10 years before the main line, as one of the early series of branch line electrifications which the New Haven scattered over the area. It was the intention to provide better local service on these lines, somewhat similar to the interurban lines which became popular a few years later, but the automobile put all the short New Haven electric lines out of the picture except for the New Canaan branch, which fits in as part of the New York suburban picture. The railroad was ahead by a vast amount of experience which proved valuable when the main line was electrified. The original electrification of the branch was with pole trolley to allow interchange with local street railway lines, but this was replaced with a high voltage A.C. catenary system when the main line was electrified.

The New Canaan branch serves a thickly settled region of suburban homes and country estates as well as several prosperous industrial plants. Train service is excellent, and in fact is more frequent than on many main lines. The bulk of the service is given by a two-car multiple unit train which shuttles between New Canaan and Stamford where connections are made with mainline trains. This two-car unit makes 16 round trips a day, while two morning rush hour trains run through to Grand Central and return in the evening rush hour.

Freight service is performed by a way freight which makes a daily round trip from Stamford. Train operation is controlled by manual block system under control of the towerman at Stamford. The only signals are the interlocking ones at Stamford. The lone passing track ties as shortest on the New Haven, three cars in addition to locomotive and caboose. This is Cemetery Siding, named from a burial ground which the branch neatly bisects on a sweeping curve.

Five miles inland from Long Island Sound the branch passes over the Merritt Parkway on a striking piece of masonry bridgework. This bridge is one of many beautifully styled bridges designed by the Parkway Commission. Driving along the Parkway one may imagine a peaceful country road on the overpass bridge, but instead one may see a two-car electric train gliding along under the 11,000 volt overhead.

This two-car multiple unit performs the bulk of the passenger service on the New Canaan branch line.

Two of the oldest electric passenger locomotives on the New Haven, used in multiple, are shown above with a New York bound train on the New Canaan branch. At right is a typical intermediate commuter station on the branch. The siding below is at Springdale and serves one of the many industries which help to keep the branch busy. At Cemetery Siding, below, the two-car multiple unit train which furnishes base service meets a New York train. This three-car siding is one of the two shortest on the New Haven.

Railroads to Golconda

BY LUCIUS BEEBE*

TOO LATE for the reprieve of many little railroads that are now fragrant legends — the narrow gauge Colorado & Southern, the South Park and the Silverton Northern in Colorado, the Eureka & Palisade and the Nevada Central in the Battle Born State, and many another old-time road which flowered in bonanza time — the Federal government in July permitted the reopening of the gold mines. The move awakened memories of the legendary boom towns of the wonderful West: Virginia City, Goldfield, Tonopah, Leadville, Cripple Creek, Central City, Hangtown, You Bet and Jamestown, but to several still surviving railroads it meant a new lease of life.

Nothing will restore the iron pike to Silver Plume or Black Hawk in the Colorado Rockies, but resumption of mining may mean a renewed vitality to such little pikes as the celebrated Virginia & Truckee, the Tonopah & Goldfield, the Amador Central, the Sierra and the Midland Terminal. The heartening sound of clanking side rods and of exhaust from long silent stacks may again be heard in the Bret Harte hill towns at the foot of California's Sierra, in the Monte Cristo Mountains towering gloomily above the Nevada desert and in the high passes and storm swept fills of the Cordillera south and west of Denver. Gold, as any whiskered prospector will tell you in the First and Last Chance Saloon or the Eureka Bar next door to it, is in those hills, to be had by the plucky and the lucky, and gold has come into its own again!

Pictured here are a handful of little railroads whose past and present and possible future are bound in the destinies of precious metals. So much has been written of the Virginia & Truckee that a rehearsal of its saga would be a redundancy, but its daily runs from Reno to Minden and Carson City are reminiscent of the Seventies when as many as 50 trains a day rolled into Virginia City and the private cars of the Comstock kings — Fair, Mackay, Ralston, O'Brien, Flood, Mills, Sharon and Sutro —lent elegance to its passenger hauls. It has been estimated that during the bonanza years, when the V&T's proprietors were pocketing dividends at the rate of $100,000 a month, the railroad hauled from the mines its own weight in silver, including the tonnage of every rail, tie, trestle, car and locomotive.

The Tonopah & Goldfield, far inland in the southern deserts of Nevada, came into being with the Goldfield boom in 1905 and 1906. In those opulent years

*Photographs by Lucius Beebe and C. M. Clegg are from the author's forthcoming book: "Highball, A Pageant of Trains," to be published this fall by D. Appleton-Century Company.

Most romantic of the bonanza railroads was the Virginia & Truckee which, in the great days of the Comstock Lode, hauled the entire weight of the railroad in pure silver out of the Virginia City and Gold Hill mines. Left: Engine No. 26, a Railway Postoffice car, and an old-time combine near Lake View, Nev. Above: The same train crosses a timber trestle in Washoe Canyon, a few miles south of Reno.

three Pullman trains a day came and went to the diggings and millions of dollars in ore were shipped to the banks and counting houses of San Francisco over the connecting Southern Pacific. Today the T&G's principal revenue derives from petroleum shipped into Tonopah, while Goldfield itself is no more than a memory of Montezuma dimensions. Reopening of the mines may very well spell a renewed vitality along its well maintained 100 miles of track covered daily by two scheduled mixed trains and numerous extras.

A railroad collector's prize item is the Amador Central Railroad in California's famed and romantic Amador Country which was celebrated by both Bret Harte and Mark Twain in the mid-nineteenth century. Its tracks run from Martell and Jamestown, where are the deepest gold shafts in the world, to a Southern Pacific branch at Ione, 12 miles away across the rolling foothills of the Sierras. It is now controlled by lumber interests which provide the great bulk of its freight. If the deeply submerged mines of Jackson, itself a hold-over from frontier times when gambling flourished and the saloons never closed, should again be productive, the Amador Central may well justify its recent purchase of a $50,000 Diesel-electric unit to supplement the tractive effort of its sole remaining steam locomotive.

It is notable that the news dis-

patches telling of the revival of gold mining in July were illustrated with a picture of the first carload of ore to be shipped out of Cripple Creek, Colo., over the Midland Terminal. The Midland Terminal, running from Colorado Springs to Cripple Creek and Victor, is the sole remaining trace of the once mightily ambitious Colorado Midland, the largest railroad abandonment in history when it closed its books. Of late Cripple Creek has been a ghost town with dust gathering on the windows of its Gold Securities Exchange and grass growing between the ties in its railroad yards. A daily train to bring out industrial ore has been run between Colorado Springs and Victor, but better times would now seem to be at hand.

Gold built and maintained these little railroads, and the golden spikes with which the top hatted and bearded railroad presidents of another day were accustomed to celebrate their completed tracks were symbolic of it. Perhaps gold will once more be the ruling element of these rusting rails and all but forgotten rights of way leading to the glamour of only yesterday!

Amador Central's No. 7, a Prairie type of herioc vintage, stops for water on the climb over the California hills from Ione to Martell. Derailments on this 12-mile line are so frequent that Central crews are famed for miles around as re-railing experts, second to none. Carrying freight only, the AC connects with a Southern Pacific branch at Ione.

Above: A tall-stacked Midland Terminal Consolidation rolls ore empties up the grade at Divide, Colo., on a below zero morning in February. Another Consolidation is on the rear. Below: Twin Consolidations pull a Tonopah & Goldfield freight near Tonopah Junction in Southern Nevada. During the years the mines were not operating, principal freight on the T&G, most isolated line in U. S., was oil and other supplies for desert-bound Tonopah.

The Virginia & Truckee, photo

Probably no one is better known for photos Sullivan, Placentia, Calif., who grew oranges for the fun of it. His file of negatives include Pacific, Union Pacific, Santa Fe and the small of his finder. The Virginia & Truckee photo camera are shown at left against the backgro along the upgrade track in Cajon Pass. Last which will be looked at and enjoyed for years.

...phed by Herb Sullivan

...much-photographed Cajon Pass than Herb
... a living and took railroad pictures strictly
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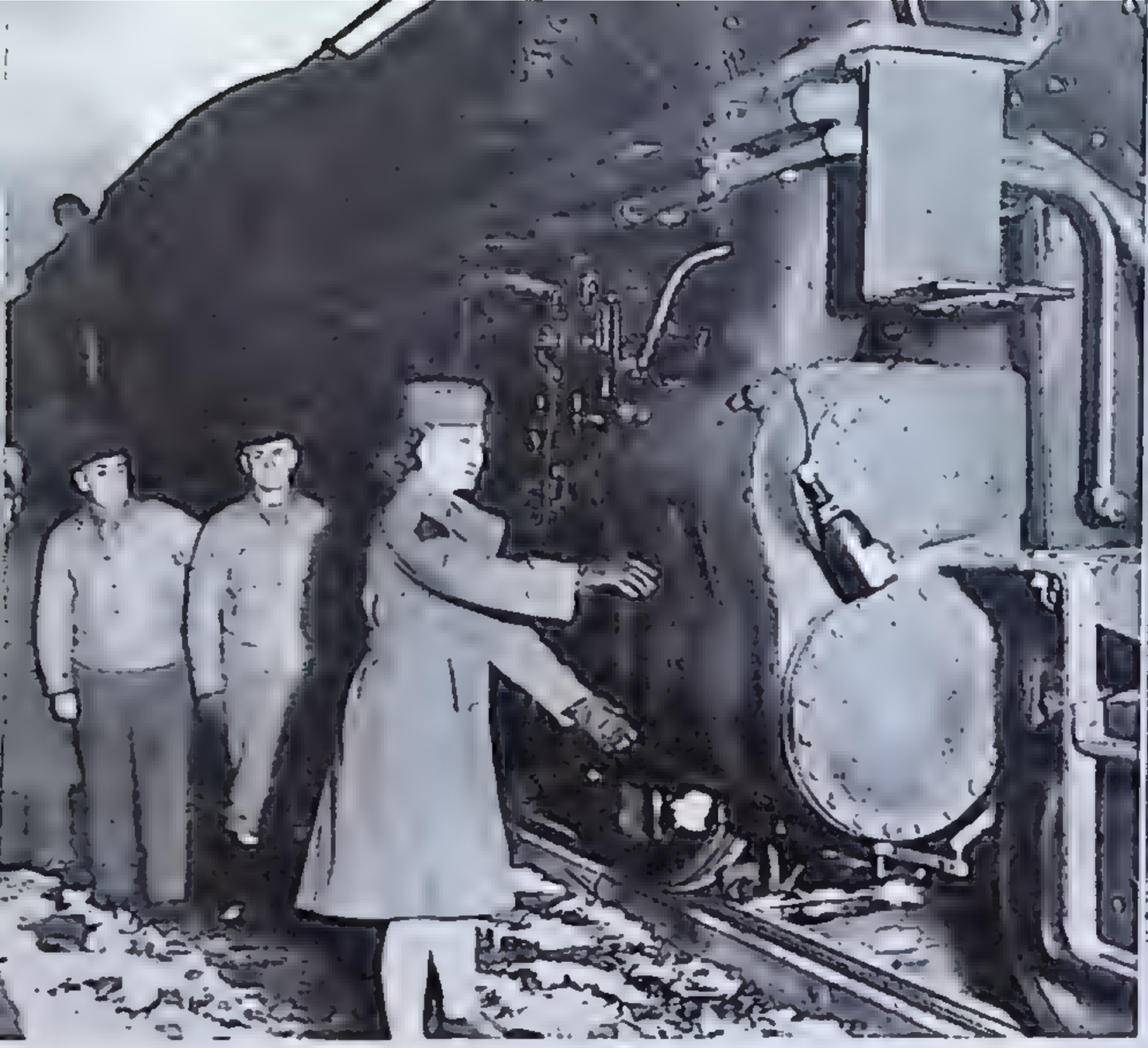


Tracks to

A brief account of how the Military Railway Service of the U. S. Army helped in the defeat of Germany

"We're still working on the railroad,
Never mind the shot and shell—
We'll run this train through to the front,
Or run it straight to hell."

THIS is a story—only partially told—of the Military Railway Service of the U. S. Army Transportation Corps and about some of the things the doughboy railroaders did in laying the tracks that helped to pave the way to final victory in Europe. In four lines that song, which is theirs—sung to the tune of "I've Been Working on the Railroad"—explains the spirit in which they did their job.

It was a wooden horse that supposedly caused the fall of ancient Troy. It is already a significant part of the history of World War II that another kind of horse, the iron horse, figured importantly in the Allies' crushing defeat of Germany.

Locomotives and freight cars and the men who ran them were not alone responsible for reducing Germany to the rubble it has become any more than tanks alone, or planes, or generals alone. But locomotives and freight cars were vastly important in getting all that was needed, where it was needed, when it was needed.

On June 6, 1944, D Day, the Allied juggernaut tore a hole in the "impregnable" Fortress Europe, a hole literally big enough to drive freight trains through. And they went through.

On D Day plus 38, freight cars and locomotives began to move across the English Channel's 20-odd miles of choppy, open water. They landed on the beaches of Normandy ready to go except for fires in their boilers, and rolled across the sand and through the hole—on the tracks to victory. By mid-October of 1944, barely more than four months after D Day, 20,000 freight cars, 1300 locomotives, 37 hospital trains and various specialized railway equipment had come into France and were moving up with supplies, in constant support of the advancing Allies.

And Hitler had said it couldn't be done—not inside of three years. Hitler forgot or overlooked the vital importance of railroads in modern war. The Allies did not.

Hitler's tracks to the quick and stunning victory that was to make him slave-master of the world were to be his great motor highways, which he built at the expense of Germany's deteriorating railway system. He brushed off as preposterous the reconnaisance reports of the Luftwaffe, which told him long before D Day that the sidings and marshaling yards of South-

Victory

All photos courtesy U. S. Army Signal Corps.

Left: A WAC christens one of the first Allied trains to leave Cherbourg. Center: A long work train, the first to cross the Rhine, going over the river at Wesel. Above: This exploded locomotive, typical of equipment damaged by planes, stands in Canisy Station in Brittany.

ern England were full of locomotives and freight cars which the Allies apparently planned to use in penetrating his "impenetrable" fortress.

Both of these ideas now rank with some of the Nazi overlord's other well publicized miscalculations. His own roads to victory became progressively useless as Allied planes bombed the Third Reich out of gasoline, and when he turned to his long neglected railway system to help him out it was unequal to the task, with the result that the great German war machine began to slow up on the inside.

Meanwhile, Allied armies were gaining momentum on all fronts. Carefully laid plans were being followed. And these plans never overlooked the importance of railroads in transporting men, machines and supplies across vast continental stretches.

THE story properly begins in Egypt, in 1942. Rommel was nearing Suez, and the British were badly in need of help. The railway problem was simple, but deadly. Plumes of smoke from Egyptian steam locomotives hauling vital supplies to British armies drew the Luftwaffe's bullets as inevitably as sugar draws flies.

The British appealed to us, and our answer was Diesel-electrics, which we supplied. We also sent over the 760th Diesel Shop Battalion to keep them running. The British put the Diesels in the middle of the trains, and the ruse worked. The Luftwaffe kept putting bullets through the front boxcars, because that was where a locomotive ought to be, and the trains kept running.

North Africa was the first big test of the military railroaders. Along with the troops they had to supply, it was the first time they came to grips with the Germans. And as the world now knows, they passed this test with flying colors. From the moment of landing, until the Germans were pushed out of Africa, the job was enormous—supplying the British Eighth Army and the American Second Army Corps over the fluid battlefronts, with German tanks pumping shells at locomotives from ranges as close as 150 yards, and bridges and stretches of track being blown up in front of them.

Tough as it was, the railroad troops did the job and did it superlatively well. Under the command of Brig. Gen. Carl R. Gray Jr. they were responsible for moving more than 16,000 carloads of supplies eastward over a rail system that had barely been able to supply civilians before the war. One of the officers under Gen. Gray's command, Col. Clarence L. Burpee,

received the Legion of Merit award for his part in this achievement. Later Col. Burpee was to become a brigadier general and director of the Second Military Railway Service.

In addition to the toughness of the railroad troops, they had the advantage of specially designed locomotives and rolling stock, turned out of the shops of American locomotive builders and brought over in the huge convoys that supplied our African troops. As many as 40 complete locomotives were delivered in the hold of a single ship.

Working together, the Allied railroad units accomplished the first of many miracles they were destined to perform in their drive to Berlin. Ton mileage in two months went up from 61,986 to 104,000 on one line alone. Locomotives were turned out of roundhouses in about one third the time French engines had been turned out. Evacuation of wounded from the front lines was one of the chief responsibilities of the Military Railway Service. During the North African campaign they evacuated 48,563 wounded to base hospitals and ports.

At the end of the Tunisian campaign, U. S. rail troops were in charge of more than 800 miles of the total of 1200 miles of mainline railroad, and were operating a great many meter gauge feeder lines. The doughboy railroaders had moved 45,255 carloads of vital supplies to the fronts. They had repaired or replaced a total of 40 bridges damaged or destroyed by retreating Italians and Nazis. A total of 160 specially designed steam locomotives had been built in the U. S. and delivered for use in North Africa, and approximately 1100 American freight cars of various types carried troop replacements, ammunition, food, weapons and other supplies to the Allied armies. It was a highly successful first round. But there were more to come.

On the fourth day of the Sicilian invasion, the 727th Railway Operating Battalion commanded by Lt. Col. Fred W. Okie landed at Licata. In four hours they had steam up. By the next day they were hauling supplies to advance combat troops.

General Patton said of these railroad troops, in an official citation, "The opening of the rail lines and the organization of the Italian railroad personnel were made so rapidly that rail service was immediately available in the Port of

Palermo when it opened on the 28th of July, and service maintained from that port in spite of bombing attacks and sabotage." The citation of the 727th was its second. Gen. Gray cited this veteran unit for its work in the Kasserine Pass, North Africa. At no time during the conquest of Sicily did the railroad troops have less than two full days' supply ready to unload behind the men at the front.

It is accepted without question that the Nazis know more about wrecking a place than anybody else. It is also undisputed by military men who saw it that their masterpiece in demolition was accomplished in Naples, just before the Fifth Army drove them out to the North. They had concentrated on the piers and rail lines, and had particularly emphasized the railway system. It was a twisted pile of junk. The Italians said it was impossible to make a railroad out of it. The British said it could be done, but it would take a long time.

Five days after the U. S. Military Railway Service landed, they had a railroad in operation. They helped clear mines, they salvaged ancient steam engines that hadn't been used for years from the bombed yards, and put them into operation. By November 26, 1943, the soldier railroaders of the Transportation Corps were operating 1000 miles of Italian roads. In addition, they built four hospital trains from passenger equipment and junked box cars and used them to capacity in returning wounded from the front.

It was late in 1942, during the dark days for Russia, when the Nazis were delivering their hammer blows. The Red Army needed the tanks and guns and food with which we were supplying it, and needed them faster than ever before.

American military railroad men received orders to operate the rail line in Iran from the Persian Gulf to Teheran after it had been thoroughly examined by Col. J. A. Appleton (now brigadier general) formerly chief of the Rail Division, Office of the Chief of Transportation. By January, 1943, a grand division, including three operating battalions, a steam shop battalion and a Diesel shop battalion, had the railroad in operation as an alternate route to

Aided by French civilians, members of the Military Railway Service rapidly rebuild a bombed-out bridge. On this page GI's lean from the doorway of a Second MRS troop car of the "40 and 8" variety so familiar in the last war. Every available piece of equipment, including captured box cars, was used to transport troop replacements.

Russia. In command was Col. Paul F. Yount (now brigadier general) who now is in charge of rail troops in India.

Our supplies were being landed at Persian Gulf ports, and from there they had to be hauled overland through Iran as far as the Caspian Sea. But the Trans-Iranian Railway was not delivering the supplies as fast as they came in, or as fast as they were needed. The principal difficulty, it was discovered, was inadequate motive power for the steep grades, sharp curves and sudden changes in temperature. The British locomotives and the Army's conventional 2-8-0's did not produce the power required to haul what the Russians needed as fast as they needed it.

Officials of the American Locomotive Company, familiar with the problems created by the Iranian road, were called in by State Department and Army men for a conference on breaking the bottleneck. The result was a Diesel type locomotive of 1000 horsepower, fitted with six axles instead of the conventional four in order to bring the axle load down to the 20-ton limit of the Iranian road. The War Department ordered a total of 57 engines of this type, familiarly known as "street cars" to railroad men. They were delivered by the company and all were in operation on the road by August of 1943. As early as May, however, supplies were reaching Russia at a rate of 18 per cent above demand, and the June total exceeded that of May by approximately 10,000 tons.

The Iranian story is only part of the transportation aid to Russia. Hundreds of locomotives were shipped to the Soviet under Lend-Lease agreement to help speed Russian war supplies to the Eastern Front. Leo T. Crowley, foreign economic administrator, announced March 14 that in the 15 months ending January 31, 1945, Russia had received 1278 steam locomotives and 27 Diesel-electric locomotives. The locomotives were part of the more than 10,000 spare units of railroad rolling stock sent to Russia during this period. In addition, thousands of tons of mounted wheel and axle sets, tons of locomotive and car wheel tires, and rails were rushed to our Allies on the Eastern Front.

You can't hide 1300 locomotives, or 20,000 freight cars—especially from enemy reconnaisance planes, and the Military Railway Service in Southern England didn't try to. They were too busy getting ready to do what Hitler had said was impossible. People had said that before, in North Africa, Italy, Sicily and Iran, and had wound up eating their words. Hitler was going to eat them too.

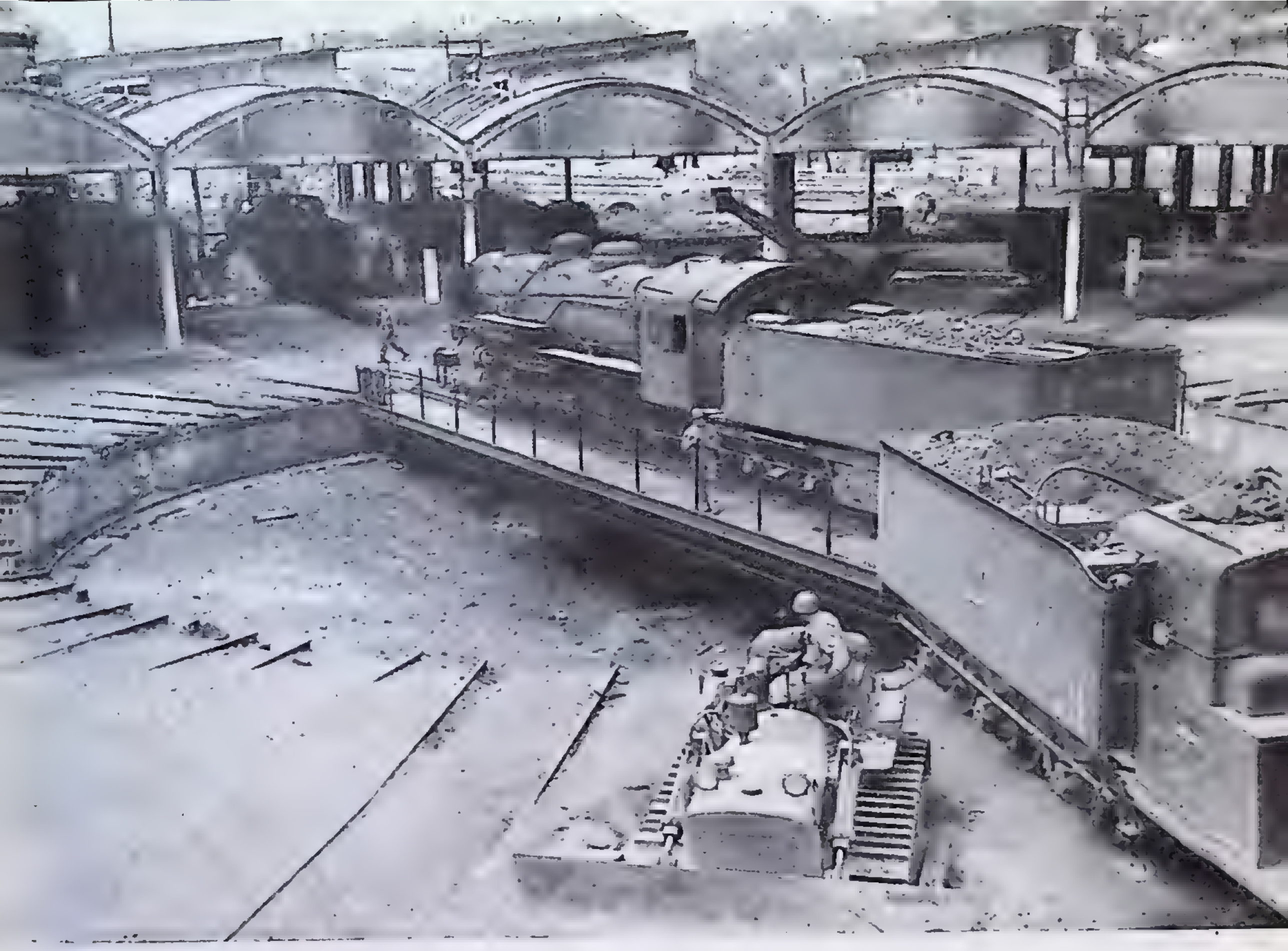
In the shops, on the sidings and in the marshaling yards of Southern England the men who do the work (the Transportation Corps under Maj. Gen. Frank S. Ross, chief of transportation) were getting ready for the biggest job that any army ever tried or even dreamed of doing in a major war, landing rolling stock on a shore where the enemy looked down at them over cannon sights.

This gigantic stock pile of locomotives and freight cars had been produced for the most part over a period of many months in the U. S. by railway equipment manufacturers and the big locomotive builders, including American Locomotive Company, Baldwin Locomotive Works and Lima Locomotive Works. Some locomotives were built in the U. S. as far back as 1942. Despite the large number of locomotives in England, they were only a part of the 4000 which had been built by American builders up to the end of 1944 for the Army Transportation Corps and for Lend-Lease export.

Meanwhile, sitting around a table in Allied headquarters in London, a joint British-American board of strategy shook their heads as Col. Sidney H. Bingham, peacetime superintendent of New York City's municipal subway system, outlined a plan for accomplishing the impossible. The board was skeptical, but it told Col. Bingham to go ahead and try it out on English beaches first.

Hitler was right when he said it would take three years to land all that rolling stock—by ordinary means. But he didn't count on the ingenuity of the Army's railroaders. Three years was about the time it would require shuttling the stuff over in the track-carrying ships the British used in cross channel work before the war. And what made it really tough was that these ships would need docks at which to unload, and it was obvious the Germans wouldn't leave any of these for Allied convenience. The stock would have to be taken in over the beaches. Difficult enough under ordinary conditions of tide, it seemed practically impossible under conditions they would have to face on D Day, a 24-foot tide leaving a bare hour and a half out of 24 for unloading operations.

But the Military Railway Service was confident it could be done. For extraordinary conditions it proposed extraordinary means. Instead of deep-draft track-carrying ships, why not use



For several weeks after the capture of Cherbourg, lack of electrical power forced the Army to use bulldozers to move turntables. Inadequate facilities and absence of power meant 24-hour duty for weary GI's.

the U. S. Navy's LST's, which had little or no draft, and slam them right up on the beaches, swing down the front door and roll the stock over the sand. So far, so good, but rolling stock is heavy and sand is soft. It still looked impossible. But our rail officers had another idea, and it was tried out on English beaches. It was simple enough if it worked, a "breathing bridge," consisting of railroad tracks set in quick-setting concrete, laid across the beach.

To get the stock from the cargo deck to the tracks, the MRS devised what was, in effect, a hinge. A section of track was fastened to the lip of the cargo deck, and the other end mounted on wheels met the tracks laid on the beach. If it worked, this should enable the rolling stock to be unloaded regardless of the tide level.

It worked, as Hitler soon found out.

On D Day plus 25, there were four "breathing bridges" down on the beaches of Normandy at low tide. On D Day plus 38 the LST's started across the channel. Each one carried 22 freight cars, which took exactly 21 minutes to unload.

By mid-October, about four months after D Day, the sidings and marshaling yards of Southern England were empty, and the army railroaders were busy doing what they had done so well and so often before—hauling the stuff from the beaches up to the front lines, and returning the wounded.

A JEEP, especially equipped with demountable flanged wheels, was the first piece of American "rolling stock" to operate on the continent. A rail reconnaissance party of the Second MRS dumped it onto the tracks near Isigny after landing on D Day plus 11 and set off toward Cherbourg. The line had just been cleared of mines. Americans were on one side of the road and Germans on the other. Artillery shells were screaming overhead. The jeep was in the middle. America's railroaders had ventured into "no man's land."

Initial operations were accomplished entirely with captured power and rolling stock. The French roads normally operated, in peacetime, about 30,000 locomotives. When the Allies got there, there were less than 4000, and most of

A camouflaged private German train, once used by high ranking SS officers, stands in a siding near Steinbach, Germany. The train is still intact with gasoline electrical generators and mounted anti-aircraft guns.

these were in bad shape. Some of these, notably engines delivered by the American Locomotive Company to France in 1918, were put into use and are today taking their places alongside locomotives brought over during the past year. A vintage 1917 American locomotive was kidnapped along with two others in a GI raiding party on the Lisbon yards at a time when snipers were firing from every window. When the engines arrived at Isigny, the box car which had been pushed ahead as a mine protector was discovered to contain—not German rations as the men had thought—but boxes of high explosive.

It has been said that the Second Battle of France could not have been fought without the 1300 locomotives and the 20,000 freight cars that rolled across the sandy beaches into the gaping holes of Fortress Europe. As an example of what rolling stock means to armies fighting from the beaches clear across a country, in the 81 days that the "Red Ball Express" operated (the temporary truck supply line from beaches to front lines) it carried a total of 500,000 tons of supplies. By the time the French lines were renovated by the Military Railway Service, our supply trains were carrying that much every 23 days.

On August 14, 1944, when the American drive across France was starting to roll, General Patton sent back word that he could reach Paris nonstop *if* 31 trains of ammunition, gasoline, oil and lubricants reached him at Le Mans in 14 days.

There were no railroads into Le Mans from Normandy. The closest point was Mayenne, 50 miles away, and the main lines to that point were out. But the soldier railroaders of the 740th Railway Operating Battalion took on the job, working night and day hitching up secondary routes and making up the trains out of any equipment they could find. Five days later, instead of the 14 days Patton had given them, they delivered 36 trains of supplies instead of the 31 he had asked for.

What Patton wanted he got—more of it and sooner than he had asked. It was the same story throughout the drive of Allied armies across France.

From May to October of 1944, the Second U. S. Military Service in command of Gen. Burpee, a veteran of the North African campaign, made a railroad out of demolished yards, smashed bridges, destroyed motive power, and what remained of French rolling stock after months of Allied bombing and German demolition as Nazi troops withdrew.

With the capture of Cherbourg, the rehabilitation of French railroads under Army engineers assisted by the railroaders in khaki had first priority, and by mid-July regular service was in effect between Cherbourg and Carentan, and this line expanded with the breakthrough from Normandy. Between Cherbourg and Paris the MRS faced a maze of problems. Once the rails within the limited beachhead had been cleared, it was a comparatively simple matter to operate with captured rolling stock and tem-

porary communication lines over short routes. But as American troops pushed forward beyond St. Lo the obvious necessity for great quantities of locomotives, box cars and tankers became apparent. The operating battalions at Cherbourg, working under great handicaps, had put several hundred damaged continental freight cars in serviceable condition. Railway personnel was limited, two captured cars with interchangeable parts were a rarity, and material for repair work was scarce. By working from 12 to 16 hours a day and enlisting the help of prisoners of war, the men had managed to put enough rolling stock on the road to keep the supplies moving.

The St. Lo breakthrough developed with dramatic suddenness, and on the heels of it came an order for 50 tankers per day. Only a trickle of rolling stock was as yet seeping through from across the Channel. A few Diesel engines and 2-8-0 steam locomotives had been included. The men redoubled their efforts. A tactical advantage had been won and American tank columns were racing for Paris, drinking gasoline in tremendous quantities. It was up to the railroads to keep them going.

In the mangled Cherbourg yards were several hundred tank cars. Some of them needed major repairs. Many others had been used by the Germans to haul tar and chemicals. These had to be cleaned. With wire brushes and gasoline the men climbed into the tankers and began scrubbing them out. Within a matter of minutes they were passing out from the fumes. One soldier got the idea of attaching a long hose to his gas mask and leaving the open end outside the tank. It worked and soon they were all adopting the same method. So far, so good. But fewer tanks returned to the terminal than were sent out to the front. Many of them were full of shell holes. The men were wandering around punch drunk from lack of sleep. It became a qustion of human endurance.

In desperation, the holed tank cars were plugged with wooden wedges, filled up and sent out again. Men at the roundhouse worked night and day to keep the locomotives serviced. Like a colony of ants they swarmed over bomb wreckage in search of parts and patches.

TRAIN crews climbed aboard with a case of rations and their bed rolls as a matter of routine. "Unless you're relieved at Lison, you'll just have to keep her rolling till somebody stops you." They often showed up two weeks later . . . tired, dirty, sick of C rations and dead for sleep. On one occasion, a crew had eased a trainload of gasoline into Le Mans behind combat engineers who were repairing the bombed tracks. In front of the engine was a flat car mounting a 50 mm. machine gun, standard equipment in Normandy.

To reach Le Mans they had enlisted the aid of the Fougeres fire department to pump water from a nearby stream to the boilers. Just outside of Vitre a French peasant donated a pile of knotty wood which the men combined with a barrel of tar discovered beside some abandoned highway repair equipment. Alternating the wood and tar with their scanty supply of coal, the crew managed to maintain enough steam.

AT A Le Mans suburban switching point, two GI's had set up shop to establish communications. The problem of installing and maintaining telephone and telegraph wires was all-important. Most of the routes were still single track and the control of two-way traffic was a vital factor in the task of returning badly needed rolling stock to the rear areas for reloading. Telephone lines were often cut at every pole. Switchboards were ripped out, or chopped up by the retreating Germans. Rear area battalions were restoring permanent communication lines, repairing signal boards and laying additional track as fast as possible, but the greatly extended supply hauls had to be controlled meantime to prevent complete chaos.

The original wire network plan called for a dispatchers' circuit, a message circuit, and a through movement control talking circuit between Grand Divisions and Operating Battalion. Also, teletype was to be provided between principal points. However, everyone was caught off balance by the sudden Allied sweep across France and the plan did not materialize. The Signal Corps, charged with the rehabilitation of railroad circuits, was swamped. Combat troops and rear echelon headquarters, constantly on the move, absorbed all available communications, manpower and equipment. As a result only the dispatchers' and message circuits were rehabilitated immediately. Railroad long lines construction was postponed. Fast schedule courier jeeps were substituted by the Office of the Chief of Transportation. Having foreseen such an emergency, Maj. Gen. Frank S. Ross, the chief of transportation, arranged with the Signal Corps for the release of 10 high-powered mobile radio units which were dispatched to key

points between Cherbourg, Nancy and Belgium.

By September, the Second MRS was operating on a maximum schedule from Cherbourg to Paris and averaging 10,000 tons a day. The equipment from England had all been landed and put in service. In August, the First MRS had landed at Marseilles and was now pushing up through Southern France. It encountered innumerable demolished bridges along the Rhone River and its tributaries. Between the Riviera and Grenoble, a blown out bridge across the Durance River made it necessary to bring supplies by train up to the river bank and ferry them across for reloading on the other side. From there they proceeded as far as Sisteron where they had to unload again and truck around a demolished trestle. The Durance was later bridged by construction engineers and railway men during severe winter weather at a point high in the mistral swept mountains. In this lonely spot, the soldiers lived in captured box cars with bunks and coal stoves salvaged from German pillboxes.

As quickly as possible, railway operating battalions on the continent built mobile headquarters units—office, machine shop, and kitchen cars with compact built-in desks, files, lathes and drills, and army field kitchen equipment—to facilitate speedy changes of location to suit the tactical situation. With the addition of a few passenger coaches and perhaps an extra freight car or two, the entire battalion could move within a few hours of being alerted. Individual train crews as well as headquarters personnel found their homes on wheels lifesavers during operations in heavily bombed areas in both France and Germany. A battalion at Stolberg, a few miles beyond Aachen, operated one of the most important classification yards of the Rhineland campaign while living in their barracks box cars.

PERHAPS the most concentrated hell the railroaders ever caught was what Von Rundstedt threw at them during his counterattack in the Belgian Bulge in December. Troops of the Transportation Corps in the advance section of the communication zone got just exactly what the combat troops got. They were bombed and strafed by the Luftwaffe, night and day. They caught it from the Nazi robot bombs, big guns and from the snipers.

Liege and Antwerp, at opposite ends of huge rail and truck line hauls, were subjected to the most intense V bomb attacks of the war. The Kinkempois marshaling yards on the outskirts of Liege were kept in operation during the battle of the bulge when V-1's were falling on the area at a rate of one every seven minutes. The railway bridge across the Meuse River, a prime target in the heart of the city, was not destroyed. During the height of the Nazi counterattack, enemy forces were within a few miles of their objective, the Liege hub of the Allied supply system. Railways operated as usual and supplies continued to roll toward Aachen, first sizeable German city to fall to Allied troops.

Operations in the blacked out enemy homeland south of the Rhine had an eery, sinister quality about them. When the newly captured rails were being pioneered, a barracks train crawled forward into the blackness out of Aachen, the crew knowing only that their advance party was somewhere ahead and would probably flag them down when the new location was reached. The engineer could see nothing ahead of him. He had a clear block through to Krefeld and knew his destination was somewhere in between, probably at Munchen-Gladbach. The locomotive swayed and groaned uneasily as it rolled over newly filled craters. Several hours passed. They were entering a town of considerable size, a typically dead city left in the wake of opposing artillery barrages. No sign of life was visible. The train, with most of its occupants sound asleep in built-in bunks, was barely creeping along. It passed on through the ruined yards and beyond, following the switch setup as prescribed. The rails led roughly northeast, toward the Rhine.

Suddenly the pilot felt an unusually pronounced lurch. He slammed on the brakes as the engine nosed down abruptly and left the rails. Sweat poured off him as he breathed a sigh of relief. The train had jammed to a quick stop and the engine was still upright. He climbed down and had a look around with his flashlight. The locomotive was resting precariously on the sunken approach to a demolished trestle. In the approaching dawn, a party walked back to the dead city and discovered its advance personnel established in the local station, expecting the battalion train to arrive sometime during the next day. A repair unit had left the switch open leading off the main line toward Dusseldorff, still in enemy hands.

By January 22, 1945, a total of 8547 miles of railroad in Northern France, Belgium, Holland and Germany was being operated by American

troops. Of this total, only 3457 miles were actually being run by the Army railroaders. The remainder, principally in the rear areas, had been turned over to French civilian operation under Allied military supervision.

IN THE year 55 B. C., it took Julius Caesar's legions 10 days to span the Rhine. In 1945 Army engineers took two hours less to build and complete the first Allied railroad bridge across the same river.

Known in military language as Project "R-259," the bridge replaced the railroad span at Wesel destroyed by the Germans in their backward flight. The engineers began work at 6 p.m. on March 29, and at 4 p.m. on April 8 it was ready for the first supply train to move up. Work went on day and night under floodlights. The timber and piles were brought up from the Huertgen Forest. Girder steel came from Luxembourg. And junk from the bombed-out town of Wesel supplied track ballast and surface through the muddy approaches. The span is 2588 feet long. It weighs 2140 tons and will carry a load of 8000 pounds per square foot.

In spite of extensive inland waterways, a generally good system of highways, and fast developing air traffic, the heart beat of European transportation has been and will for many years continue to be the railways. Allied air forces, German demolition and opposing artillery did a thorough job of destruction during the five years of European war. Unless the rehabilitation of these rail systems continues at an ever increasing rate, France, Italy, Germany, and the smaller countries face a long period of maladjustment.

Army engineers and the Military Railway Service have done much to put principal lines back in operation. They have repaired about 15,000 miles of track, rebuilt well over 500 bridges. They have demonstrated the possibility of planning and maintaining incredibly heavy traffic over limited facilities in times of emergency. They have shown how sheer imagination can sometimes accomplish the impossible.

Many projects beyond the limits of military necessity have been carried through to aid the French. Before pulling out of Paris, the Germans dynamited the interlocking mechanism at St. Lazare Station, the capital's largest suburban depot. While under American direction, military personnel put the system back in working order and St. Lazare now is the world's busiest station. An average of 330,000 persons pass through its gates daily.

An Alco-built 2-8-0 swings off a sea train at Cherbourg. Nine days after the capture of this port, rehabilitated French and German locomotives were in use supplementing the overworked GI Consolidations.

Fast Freight Service . . .

FINE TODAY AND EVEN FINER IN THE COMING YEARS OF PEACE, *is the Pledge of the M. & St. L.*

To insure fulfillment of this pledge, the M. & St. L. is completing a ten-year improvement program, approximating $25,000,000. Modern equipment added by the M. & St. L. in 1944 included 500 new steel box cars; 150 flat cars and four 1,000 horsepower Diesel combination road and switching locomotives.

Already delivered in 1945 are the two big Diesel road locomotives; two more of the 1,000 horsepower Diesels and the first of ten lightweight aluminum box cars, symbol of M. & St. L. progress in modernization of equipment.

Also being built this year are 500 more standard steel box cars; three more of the 1,000 horsepower Diesels; and six stainless steel passenger coaches, streamlined and air conditioned.

THE MINNEAPOLIS & ST. LOUIS RAILWAY CO. — THE PEORIA GATEWAY

THE MINNEAPOLIS & ST. LOUIS RAILWAY

General Offices: NORTHWESTERN BANK BUILDING, MINNEAPOLIS 2, MINN.

Maintaining a railroad's track and roadbed in A-1 condition requires the services of a large number of construction crews. Hard workers — these men require plenty of wholesome food at regular mealtime intervals. But, being constantly on the move, they are frequently many miles distant from a city or town.

To meet this situation, Union Pacific provides two "outfit cars" for each construction crew. In one of these cars there is a dining room, kitchen, and storage space for food . . . a rolling restaurant. The other car is converted into comfortable living quarters for the manager whose chief occupation is the preparation of meals. There are a thousand of these outfit-car managers — fifty of them women. They find a deep satisfaction in their culinary ability to provide tasty, well-balanced meals . . . and in keeping their home-on-wheels spic and span.

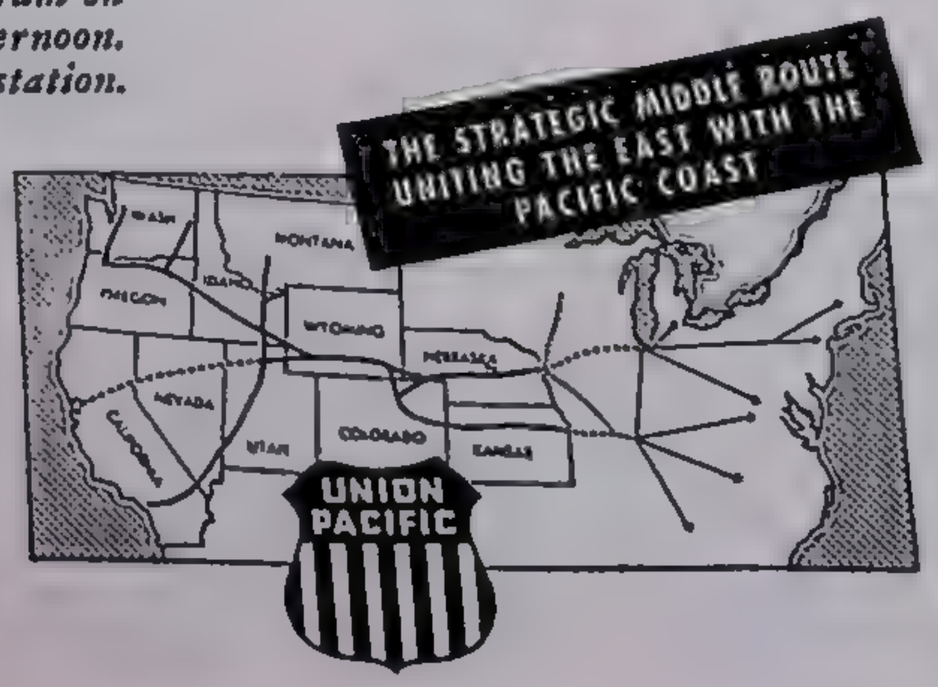
★ ★ ★

Needless to say, the ringing of the dinner bell is a welcome sound to the construction crews who are doing their part to speed vital freight shipments, and the armed forces, over the Union Pacific Strategic Middle Route, uniting the East with the Pacific Coast.

★ Listen to "YOUR AMERICA" radio program on Mutual nationwide network every Sunday afternoon. Consult your local newspaper for the time and station.

THE PROGRESSIVE

UNION PACIFIC
RAILROAD



SPECIAL INSTRUCTIONS

1. SUPERIORITY OF TRAINS:
Eastward trains are superior to trains of the same class in the opposite direction.

2. TRAIN REGISTERS AT:
Bielefeld Tower No. 2
Herford Tower (All Trains)
Lehrte Tower (All Trains)
Oebisfelde Tower (All Trains)
Hannover Hi-Line Tower (For Trains originating or terminating Hannover)

3. BULLETIN BOOKS AT:
Bielefeld Tower No. 2
Herford Tower
Hannover - Crew Dispatcher's Office
Lehrte Tower and Crew Dispatcher's Office
Oebisfelde Tower

4. CLEARANCE CARD FORM "A"
All trains running with the current of traffic may proceed from their initial station on receipt of Clearance Card Form "A".

(a) Single track operation is in effect between Blockstelle 106, KMP 106, and Brake, KMP 102.7, and method of operating will be absolute block. Trains will come to a full stop at stop board on either end of single track and may proceed only on receipt of Clearance Card Form "A" from operator at Blockstelle 106 or Brake.

(b) Single track operation is in effect between Maybrook, KMP 76.3, and Tacoma, KMP 75.6, over the Weser River bridge and method of operating will be absolute block. Trains will come to full stop at stop board on either end of single track and may proceed only on receipt of Clearance Card Form "A" from the operator at Maybrook or Tacoma.

5. RULE 99 will be observed in its entirety at all times by all members of crews. Conductors will be held responsible for the proper display of markers on rear end of their trains.

6. DOUBLE HEADING:
When double heading, lead engine will control the air brakes.

7. MAXIMUM SPEED PERMITTED:

Main tracks between Bielefeld and Oebisfelde	30 M.P.H.
Shoo Fly, KMP 103 to 102.7	10 M.P.H.
Weser River bridge, KMP 75.6 to 76.3	5 M.P.H.
Lhone Yard, KMP 93.0 to 87.0	5 M.P.H.
Thru all station limits	10 M.P.H.
Thru turnouts	10 M.P.H.
ENTIRE LINDEN FREIGHT LINE from Seelze to Lehrte, 12.7 to 40.2	15 M.P.H.

8. All personnel whose duties are in any way affected by this timetable will avail themselves of a copy and have it in their possession at all times while on duty.

9. OPERATIONS OFFICERS:

Major E. B. SWEET,	Asst. Superintendent
Captain H. F. WEAVER,	Trainmaster
1st Lt. B. H. WATERS,	Asst. Trainmaster
1st Lt. L. R. EIFFLER,	Asst. Trainmaster
1st Lt. J. H. STRINGER,	Rd Foreman of Engines
Captain W.J.B. GUNION,	Chief Train Dispatcher
2nd Lt. J. A. ALLEN,	Asst Chief Train Disp
Captain J. E. IRMAN,	Division Engineer
Captain W. F. PARLICH,	Div. Master Mechanic
Captain H. W. GARDINER,	Division Storekeeper
2nd Lt. R. J. KIBLER,	Adjutant

U. S. ARMY
SECOND MILITARY RAILWAY SERVICE
E.T.O. GERMANY

729th Railway Operating Battalion

HANNOVER DIVISION

TIMETABLE NO. 3
Supersedes Timetable No. 2

Takes Effect 0001 Hours, Tuesday, 1 May 1945

For The Information and Government of Military Personnel

CARL GRAY
Brigadier General, U.S. ARMY
Director General, Military Railway Service

C. L. BURKE
Brigadier General, U.S. ARMY
General Manager

Lt. Col. G. C. WHITE
C.O., 707th Ry Gr Dv
General Superintendent

Lt. Col. W. C. SMITH
C.O., 729th Ry Op Bn
Superintendent

HANNOVER, GERMANY

Timetable for the Military in Germany

"The campaign is proceeding according to schedule" was often heard during the German war, and indeed it was. In fact it might have been said that it was proceeding according to timetable, and the timetable was that of the Military Railway Service. Here is the operating timetable for one division. Like many a domestic timetable for a division without regularly scheduled service, it is a bulletin, designating mileages, facilities, directions, and giving special operating instructions, but no scheduled running times, thus forming a framework within which trains may be operated as extras by train order.

HANNOVER DIVISION

FIRST SUBDIVISION
HANNOVER - BIELEFELD
Double Track • Right Hand Operation

EM Point	Miles From Hannover Eastward	OBSERVE RULE 99		Miles From Bielefeld Eastward
0.0	0.0	HANNOVER STA.	DM	60.0
5.2	5.1	LETTER		62.9
11.7	7.2	SEELZE	DM W	67.3
16.3	11.9	HAENICHEN		57.0
21.5	17.3	WUNSTORF	DM W	51.7
21.8	17.6	HASTE		51.5
34.3	22.2	LINDHORST		45.8
35.1	20.8	STADTHAGEN		44..
46.6	30.0	NIENBUEDDSTER		34.0
48.8	34.2	HOCKERTAG		29.8
64.1	49..	PEIN AN	DE W	24.9
67..	51.1	PLETA		21.2
71.0	47..	VEHLENBECK		22.9
71.5	47.1	MINDEN	DM	22..
76..	47.6	MAYBROOK	DM	22..
79.5	50.1	BAD OEYNHAUSEN		17.1
..1	0.0	BOESELD		17.2
..	..	LEHRTE		.7
6.1	19..	[illegible]	DE A C	1.0
1..7	4..	Brake		1.9
..	..	J. CROSSING 106		..
..	..	BIELEFELD STA.	DM .. C	0

D - Office of The Chief Train Dispatcher
H - Battalion Headquarters or Location of Battalion

HANNOVER DIVISION

SECOND SUBDIVISION
HANNOVER - OEBISFELDE
Double Track • Right Hand Operation

EM Point	Miles From Hannover Eastward	OBSERVE RULE 99		Miles From Oebisfelde Eastward
255.5	0.0	HANNOVER	DM	54.6
282.1	2.0	KLEEFELD		52.6
247.1	5.1	ANDERTEN-MISBURG		49.5
244.9	7.0	AHLEM		47.6
234.2	10.1	LEINTE	DM I W C	44.5
239.9	10.2	IMMENSEN-ARPKE		34.4
223.9	19.6	HOLLENSEN		35.1
219.8	22.2	TRINKHAUSEN		32.4
217.0	23.5	PLOCKHORST	DM I W	29.1
213.9	25.9	HEINSEN		26.7
210.2	29.4	LEINDE		24.2
199.2	36.4	LEINSTEDT-GIFHORN	DM I W	17.2
192.9	38.7	GALILEAN		15.9
190.4	42.7	FALLERSLEBEN		11.9
181.7	47.1	RUTHENVELDE-WOLFSBURG		7.5
179.1	48.9	VOLKSFELDE	DM	5.7
137.2	54.6	OEBISFELDE	DE W C I	0..

D - Day Office
N - Night Office
C - Coal
W - Water
I - Interchange Point with German Branch Trains.

* SPECIAL INSTRUCTIONS ON REVERSE SIDE

THIRD SUBDIVISION
LINDEN FREIGHT LINE
Double Track • Right Hand Operation

EM Point	Miles From Seelze Eastward	OBSERVE RULE 99		Miles From Lehrte Eastward
12.3	0.0	SEELZE	DM W	17.3
15.0	2.0	AHLEM		16.3
18.9	3.9	KORTINGSDORF		13.4
19.9	4.5	BADERSTEDT		12..
22.5	5.1	HANNOVER-LINDEN STA.	DM	11.2
24.9	7.6	LEINEDOUCKE		9.7
28.8	8.6	WALLHAUSEN		3.7
27.7	9.2	WALDHEIM		0.1
30.5	10.9	KIRCHALGOR		6..
34.6	13.4	HESSBURG		3..
40.9	17.3	LEHRTE TOWER WEST	DM C W	0..

The direction of operation on this Division as covered by this Timetable will be as follows:

Main Line:-

Eastbound - Bielefeld to Oebisfelde

Westbound - Oebisfelde to Bielefeld

Linden Freight Line:-

Eastbound - Seelze to Lehrte

Westbound - Lehrte to Seelze

Ancient Coach

Quite unlike many of the ornate cars of its period this sleeping car of the 1870's offered only the barest of comforts. This was used in immigrant or second class service in the western part of the country.

One Way Train

Another of those intriguing schedules, a train operating only in one direction, may be found on the Delmarva Division of the Pennsylvania. This line has soared to unpredecented heights of traffic with Navy business between New York, Philadelphia and Norfolk. Night trains in each direction are the *Cavalier* and *Mariner*, while the day train is known as the *Del-Mar-Va Express*. Operating northbound only, on a very fast schedule by the way, is the *Sailor*. Consuming but four hours, with four intermediate stops, this train is setting new standards for the natives over on the peninsula. But somebody please tell us how it gets back from New York to Norfolk.

Bulk Cargo Impractical by Air

The airplane has been so tremendously important in this war, not only as a tactical instrument but in moving men and rush shipments of supplies, that there is a tendency to over-exaggerate the cargo-carrying possibilities of the airplane. R. S. Lovett, assistant secretary of war for air, set up a hypothetical case, supposing the problem of carrying 100,000 tons of freight a month from San Francisco to Australia. This job can be done by 44 ships with crews of 3200 men. To do this same job in cargo planes would require 10,022 planes with flight crews alone totaling 120,765 men, and 85 tank vessels would be necessary to haul fuel for the planes. In other words, the use of planes for such bulk cargo would not save ships; it would require a double number! The plane is at the same fuel disadvantage with respect to railroads and it is utterly improbable that the railroad will become obsolete as a heavy freight hauler after the war, as some aircraft proponents would like to make us think.

Sgt. Forest Crossen, MP Det., Denver, Colo.

No. 76, a Brooks-built 2-8-0, was purchased from the Denver, Boulder & Western in 1909 by the Colorado & Southern. When the C&S narrow gauge was abandoned, it was 76 that pulled the last train from Climax to Leadville. Now this engine stands on a dead track in Denver, Colo.

Tell It to the Judge!

Daniel Willard, late president of the Baltimore & Ohio Railroad, took a trip to Washington in his private car, and when the train pulled into the station he sauntered up to see the engineer.

"I thought we had a rule that this train should not go faster than 60 around the curves," he said. "I had a speedometer in my car, and it registered 85 doing the curves."

"Speedometer in the cab said 60," said the engineer. "I didn't see your car going past me any time." — June Provines, in *Chicago Tribune*.

Without Love

Gatemen at Union Station told a *Post-Dispatch* reporter that from where they stand there are more married men in uniform than the Selective Service people in Washington think.

It has been the custom to permit travelers in uniform to board trains several minutes ahead of the most essential civilians, they explained. Recently this wartime courtesy has been extended to wives of military men traveling with their uniformed husbands.

"You'd be surprised," one gateman said, "just how many service men seem to have their wives tagging along with them. I mean, you'd be surprised unless you knew how many of those happy couples separate the minute they get through the gate."

The traveling soldiers, sailors, Marines and Coast Guardsmen haven't yet picked out a title for the depot brides, but many have made the brief acquaintance of one or more of them. Sometimes a military man finds an unexpected "wife" hanging on his arm as he reaches the gate. Others arrange such "marriages" during the course of a journey that involves a change of trains. Other such unions develop on trains shortly before the dining car is opened to men in uniform.

"We're in favor of it," one soldier said, "It's nice to have somebody to talk to during a long trip. That is, if you can still hang onto her once you've got her through the gate."

There is, however, no record to date of a male civilian creeping aboard a train under the sponsorship of a Wac or a Wave.—St. Louis (Mo.) Post-Dispatch.

The 5 o'Clock Monon

When the Monon changed its schedule and the "5 o'clock" started running at an earlier time, Indiana lost a train which had become an institution

BY JOHN W. HILLMAN*

A CHANGE in railroad schedules rarely is a matter of much interest to the average citizen—unless he happens to arrive at the station at 1:30 and discovers that his train left at 12:45. But when the Monon Railroad shifted the time of its afternoon train from Indianapolis to Chicago last February, it made news in Indiana.

The train wasn't discontinued. The Monon merely moved its departure up from 5 o'clock to 2:15. The train still runs but, as far as the people of Indianapolis are concerned, it's not the same. And someone should start a movement to change that 5 o'clock Monon back to 5 o'clock. We owe that to posterity.

On the time tables, that unique train was called *The Hoosier.* But to Indianapolis, it was simply "the 5 o'clock Monon." That was identification enough, for everyone here knew it and most had ridden on it to Chicago, not once but many times. And it was as much a part of Indiana as basketball, the statehouse, fried chicken or the Circle.

To understand Indiana, one should have made at least a few trips on this historic carrier. It had that family atmosphere which develops on an ocean cruise after the second day out. The faces across the aisle were familiar, the names you heard mentioned were those of your friends or friends of your friends. There was none of the don't-speak-to-any-strangers stiffness of an ordinary train—this was just part of Indiana which happened to be moving in the same direction at the same time.

It was a pleasant journey through familiar scenes, this trip across the twilight, a pleasant journey with good companions. As the coaches slid out of the train shed, the afternoon sun slanted through the windows at the end of a

*Editorial columnist on the *Indianapolis Times.*

William A. Swartz, 159 W. 6th St., Peru, Ind.

No. 286, a 2-8-0 class H-6 locomotive built for the Monon by Brooks, stops with freight in Sheridan, Ind.

day. At Boulevard Station on 38th Street the train paused while men with brief cases or fishing tackle kissed their wives and climbed aboard.

And then the train rolled northward through the real Indiana, the Indiana of green cornfields and wheat in the shock, of chalky sycamores and lonely oaks and spreading beeches, of fat cattle standing at the barnyard gate, of neat farms and village homes built companionably close to the tracks.

Your newspaper lay across your knees unread as the flatlands of central Indiana slid past, the little market towns and county seats with intriguing names and tall grain elevators. Carmel and Westfield, Quaker way stations on the ghost railroad that led to freedom in the days of slavery. Kirklin, Frankfort, Rossville, Owasco, Ockley, Rensselaer, Pleasant Ridge, Fair Oaks and Rose Lawn. Town names can tell a lot about a state. Delphi and Monticello, the first gateways to the resorts that extend northward to Cedar Lake at the dooryard of Chicago.

The car wheels drummed out Gershwin harmonics as the sun sank in the west, turning the clouds to gold and staining the sky with crimson. And then as the darkness deepened, the distant woodlots seemed to close in, reminding you that this was once a place where a squirrel could run across the treetops from the Great Lakes to the Ohio.

Those far off lights near the vague horizon might have been the council fires of those who long ago knew this land, and loved it. Black Hawk came this way. Tecumseh and the Prophet. They moved on but left behind a name for the white man to use—Monon, the swift-running.

As the lamps were lit, you moved to the dining car. And here again you were finding Indiana at its best, with good food, the kind that George Ade and John McCutcheon and the giants of their generation—for they, too, rode this line—relished and remembered. You ate as one should eat, slowly and well and among friends.

And then you returned to the coach, or to the parlor car which in itself had grown to be a landmark in the life of our state. You smiled as the men in the forward chairs chaffed the veteran porter about "his company." For, by some coincidence, he bore the same name as the president of the Pullman Company, David A. Crawford. Perhaps that was the reason for the proprietory air with which he stepped, soft-footed, a gracious host among the big green chairs which were turned congenially together into little groups.

Finally you paused at Hammond, and left Indiana behind, physically but not in spirit, as the lights of Chicago grew into long strings and clusters. The schedule said that you were due at 9:15, but that was more of a prediction than a promise—with no allowances for hot boxes or the vagaries of rolling stock and roadbeds. But, whether 9:15 or 10:15, few seemed to care. Time mattered very little when you rode the Monon train.

The journey ended appropriately at the Dearborn Station with its turn-of-the-century appointments and worn sills. Like the 5 o'clock, it, too, seemed conscious of the past, lost in the shabby dignity of history. This was Chicago, but not the sophisticated city of Michigan Boulevard and the Outer Drive; here it was older and mellower and less hurried, a Chicago that was closer to Indiana in more than miles.

This, then, was the 5 o'clock Monon. It was more than a train; it was an institution and a tradition in Indiana. And its passing is like the loss of a living thing.

An old friend has gone to the Valhalla of steel and steam.

Julia Bursch.

It won't be over till he's back from over there

SIX tons of freight on the beachhead — and another ton coming through every month — that's what it takes to keep him and every other American fighter out there in the Pacific.

And this summer millions of others are on the way to join him — moving clear across the continent and halfway round the world to finish a gruelling, stepped-up job that demands more and more help from all of us.

So day and night you are seeing the greatest westward movement of passengers and freight in history — a movement that, since victory came in Europe, has changed in direction but not in volume.

Passenger cars are needed for the fighters who *must* travel — while every freight car must be loaded quickly, emptied promptly and hurried back to work.

The job is to "*keep 'em rolling.*" The railroads still need the cooperation of shippers, of travelers, of the armed services, of the government — the superb cooperation which has so vitally aided in doing the toughest transportation job ever tackled.

To do their vital job
RAILROADS NEED MEN.
See any office of the
Railroad Retirement Board
or the U. S. Employment Service.

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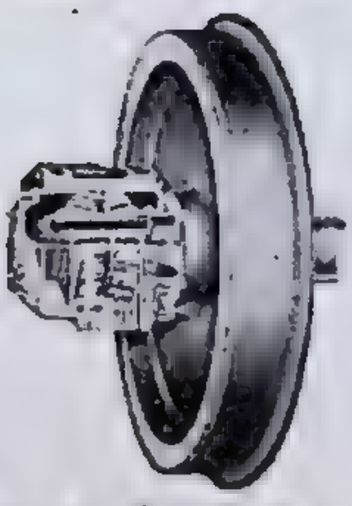

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RAILWAY ROLLER BEARINGS

The Chicago-New Orleans "Panama Limited" of the Illinois Central Railroad recently completed 3 years of service without a single hot box or delay of any kind due to journal bearings.

These two Pullman-built trains—youngest of America's sleeping-car streamliners—are equipped with Timken Roller Bearings on all car journals. Each car has gone 1,000,000 miles.

Meanwhile many other American streamlined trains, with many more years of service to their credit, continue to roll up phenomenal trouble-free mileages on Timken Bearings. The Timken Roller Bearing Company, Canton 6, Ohio.

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8 LIMA 2-6-6-6s

for the

HEAVY TRAFFIC

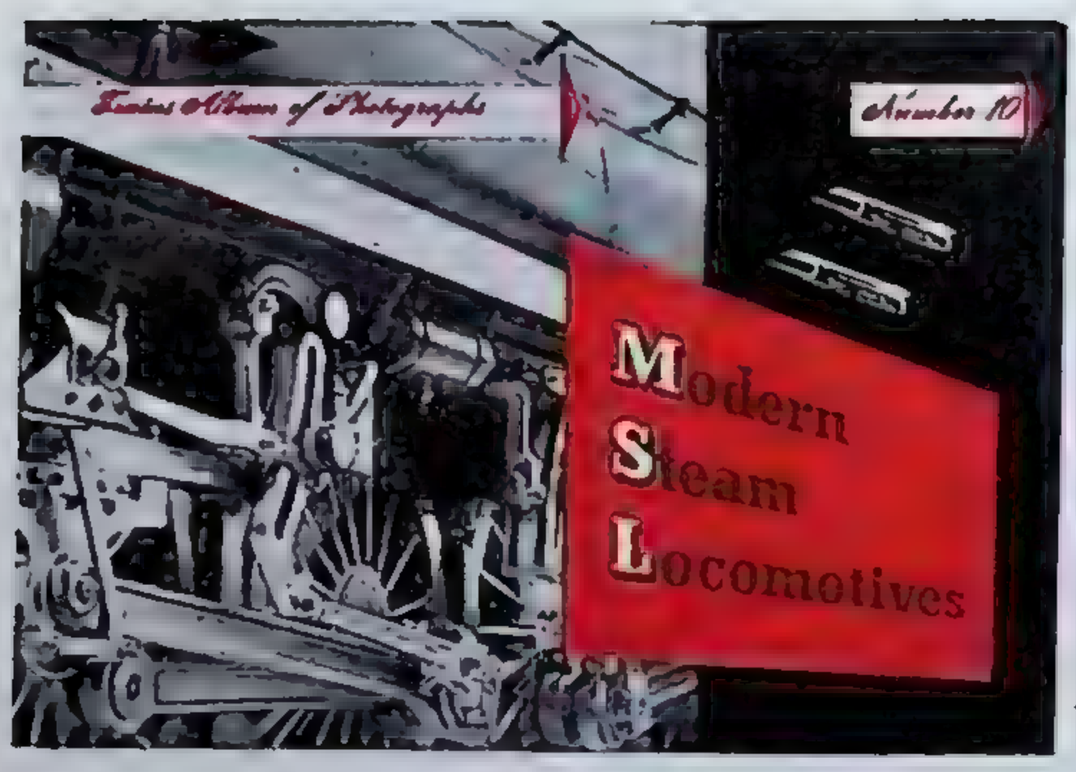
on

The Virginian

To handle its heavy coal traffic still more efficiently, The Virginian Railway has recently placed in service eight Lima 2-6-6-6 locomotives.

These four-cylinder, six-coupled articulated giants are capable of hauling the heaviest freights, over mountain grades, at sustained high speeds.

LIMA LOCOMOTIVE WORKS, INC., LIMA, OHIO



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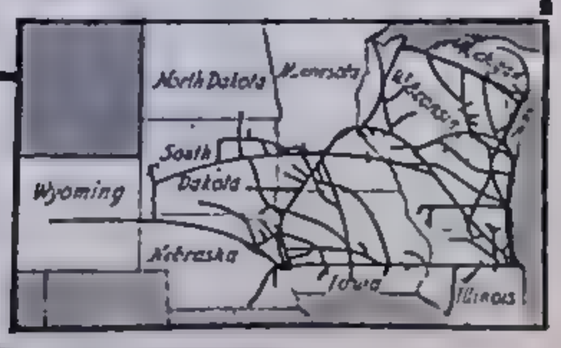
THE year 1855 was significant in the annals of western railroading. In a history of early transportation, the report was brief of an event of tremendous importance. "This year," it read, "a telegraph line was built alongside the road between Chicago and Freeport and the trains were operated by it."

Thus was the telegraph first used in the west as an aid in train operations. Its use brought new safety and efficiency to train movements...was vital in the rapid expansion of railroads and the development of communities in the west.

The union of telegraph and rail operation is taken for granted today. But there were skeptics, back in the 50s, who thought messages in the form of electrical impulses would never run a railroad!



In the 97-year growth of the Chicago and North Western System the new has constantly replaced the old. "5400" Freight Diesels, recently placed in service and illustrated here, are examples. These new power plants are capable of pulling a train of loaded freight cars 500 miles without a stop for fuel. They are geared for safe speeds up to 70 miles an hour!

CHICAGO and NORTH WESTERN SYSTEM

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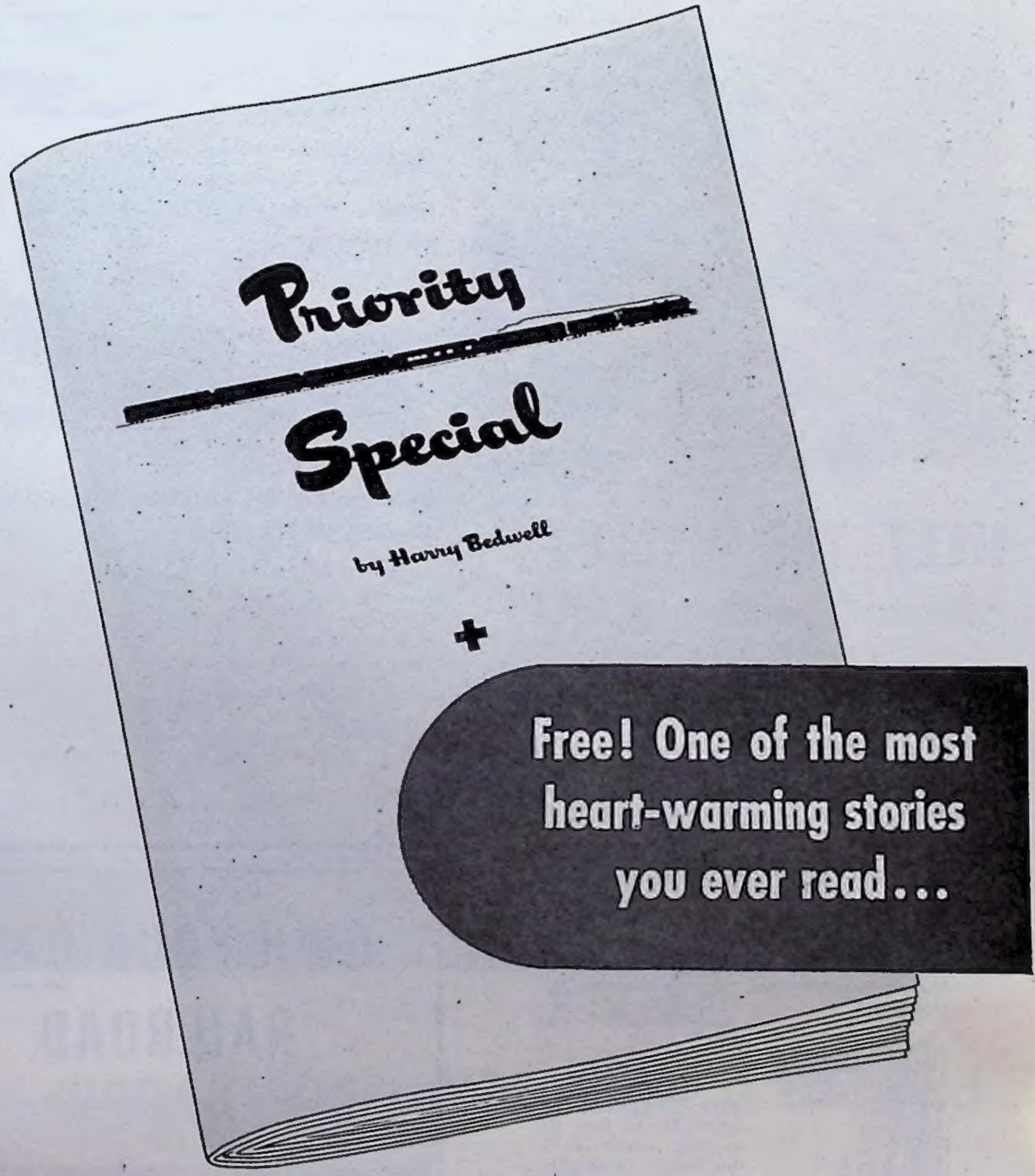


It is "Priority Special," by Harry Bedwell, S. P. operator and noted writer of railroad stories for national magazines. We have published it in a handsomely illustrated, 32-page booklet. You can have a copy free for the asking.

To give you an idea of the story—

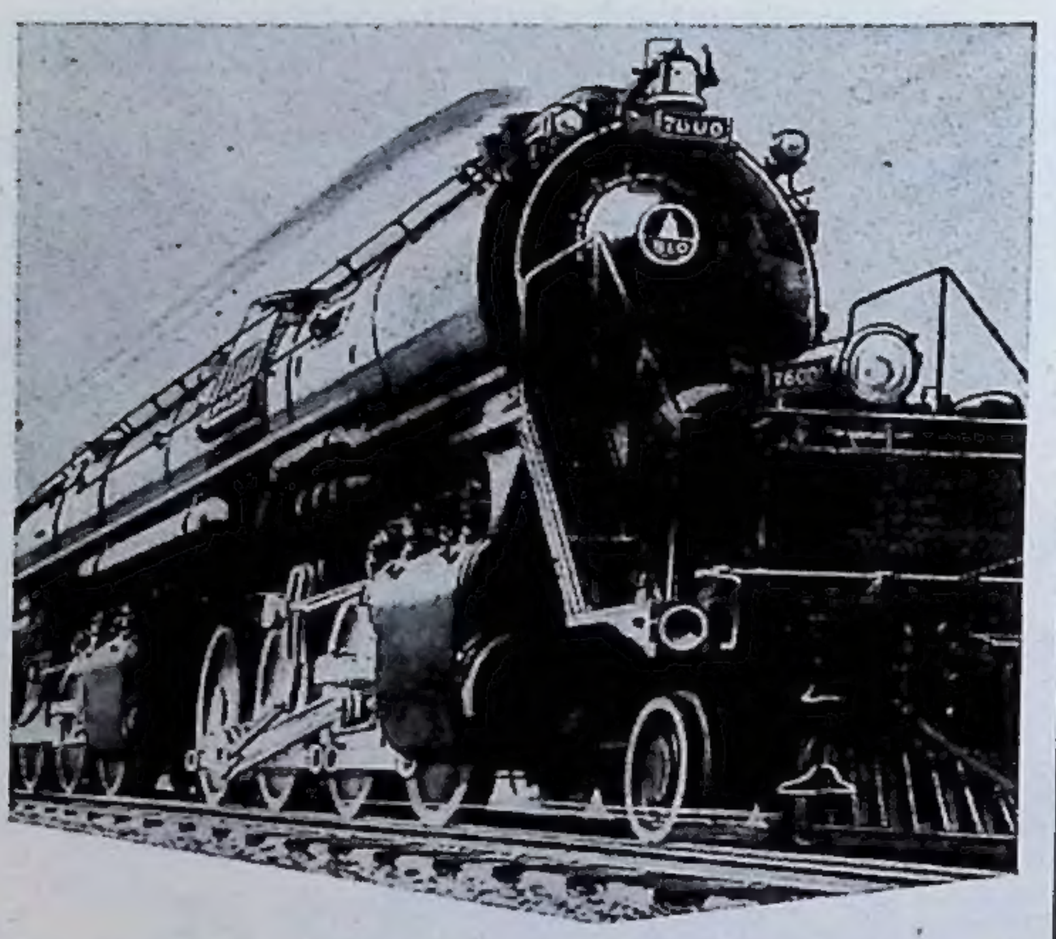
Suppose you drove your car through a large city during the rush hour, and never made a stop or a jarring pause . . . with no one getting in your way, and with the traffic lights winking green at every intersection... and on top of that, suppose that you had as your passengers three seriously wounded soldiers who would suffer great pain from any sudden jar or jolt... Translate that into railroad language—say "Army hospital train" for "car," "S. P.'s crowded Los Angeles Division" for "city"—you have some idea of the interest and suspense packed into this story.

It was dramatized on "The Main Line," our Don Lee-Mutual Network radio show, recently.

Send your request to Claude E. Peterson, Vice President, Southern Pacific, Room 735, 65 Market St., San Francisco 5, California.

S·P The friendly Southern Pacific

Trains - Santa Fe



MEET THE MALLETS—

Powerful newcomers to B&O's great freight fleet!

To the already powerful fleet of B&O locomotives have been added 20 of these giant new Mallets.

Goliaths of power, the new Mallets symbolize the B&O's earnest and determined desire to give even better service whenever and wherever possible.

TALLER THAN THREE AVERAGE MEN balanced foot to-shoulder—the B&O Mallets tower 15 feet, 11 inches!

THE MALLET IS L-O-N-G! In fact, its over-all length is ¾ the height of mighty Niagara Falls—or 125' 5⅝" from coupling to coupling!

EACH B&O MALLET WEIGHS MORE THAN TWICE AS MUCH AS THE STATUE OF LIBERTY —or exactly 1,010,700 pounds!

POWER ENOUGH TO MOVE 150 FULL CARS OF COAL (about 15,000 tons) on level terrain at an average speed of 30 miles per hour, the giant Mallet has a 115,000 pound tractive force!

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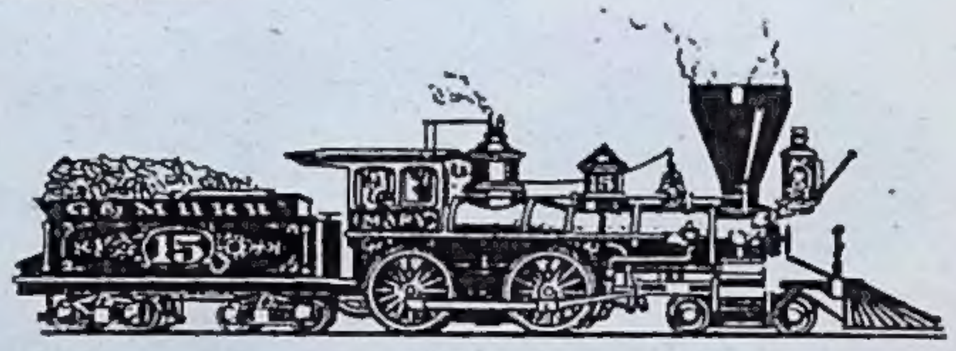

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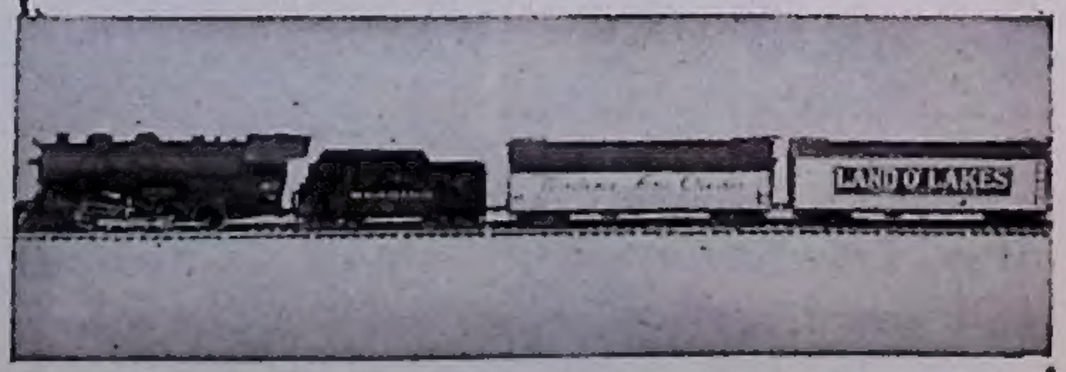

Building scale models of cars, locomotives and even the right of way, itself, is a hobby leading to endless enjoyment.

Write for our booklet on miniature railroading along with our pre-war catalogue—It's interesting reading—Price 25c.

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How many locomotives make a railroad?

HOW many locomotives a railroad needs depends on many factors—the size of the railroad, the kind and amount of load it carries, the nature of the territory it serves, and so forth.

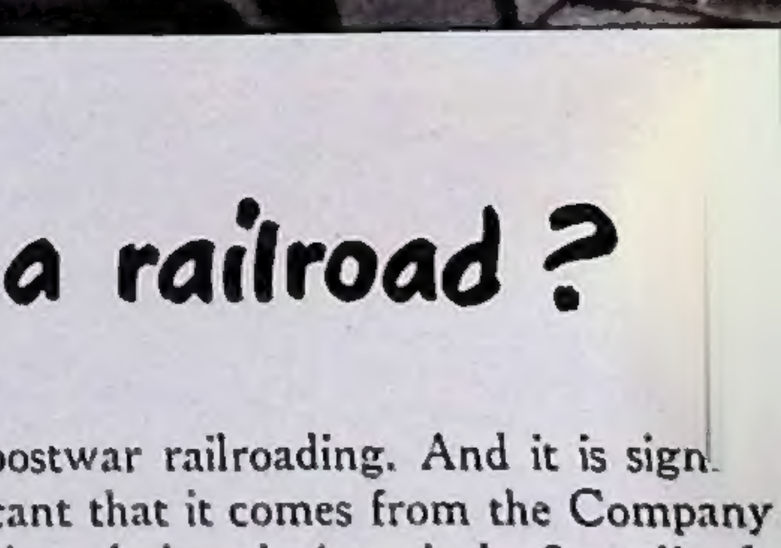
Today, however, regardless of these factors, a railroad can do the same job with fewer locomotives—thanks to an important development.

You see, for years, the railroads bought and maintained different types of equipment for freight and passenger service. Locomotives powerful enough to haul freight trains have usually been too costly to operate on passenger runs—and locomotives speedy enough for passenger service haven't had the pulling power to haul freights.

But now—out of the shops of American Locomotive—are coming locomotives that are *interchangeable*. Locomotives powerful enough to haul freights, yet speedy enough to handle passenger trains, with low maintenance costs and high availability. Locomotives that reduce the need for "helper" locomotives on steep grades.

The principles underlying this development can be applied to any type of locomotive—diesel-electric or steam or any modification of either type. It doesn't matter whether coal or oil is used—*economy of performance* is American Locomotive's chief concern.

This is just one of many developments that will contribute to finer postwar railroading. And it is significant that it comes from the Company that designed America's first diesel-electric locomotive, built the world's largest steam locomotive and has supplied an important share of the locomotives now being used for war purposes by the United Nations.



GREAT NORTHERN RAILWAY

BETWEEN GREAT LAKES AND PACIFIC

Cattle, sheep and hogs from Northwest farms and ranches go to markets in modern livestock cars.

Rugged gondolas transport fuel, steel, sugar beets, sand and gravel.

SPECIFIC TRANSPORT JOBS REQUIRE RIGHT KINDS OF CARS

Diversified Equipment Marks Great Northern's Large Freight Car Fleet

Like the Navy's ships, Great Northern's freight cars are of various types. Each is built for a specific transportation job.

In Great Northern's freight fleet, which is doing battle duty on the Victory road these days, the familiar "box" predominates. An increasing number of the railway's box cars are of plywood-steel construction. Light and rugged, these cars are tip-top for grain, finished lumber, and many other kinds of freight.

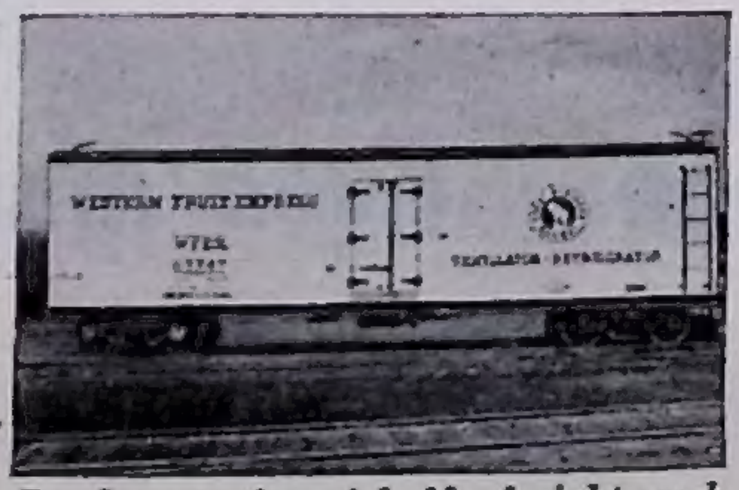
Another special "breed" of rolling stock is Great Northern's 75-ton-capacity iron ore car. Thousands of these husky, hopper-type cars are required for the railway's movement of ore from the Minnesota range to Lake Superior vessels.

For safe transportation of tremendous quantities of perishable foods from and to its territory, Great Northern provides a fleet of modern refrigerator cars.

Great Northern's freight fleet also includes livestock cars, flat cars, gondolas and hoppers—the right kind of equipment for every kind of transport requirement.

Having the right car for every job is one of the many things which make Great Northern great.

Military, industrial and agricultural machinery, poles and timbers move over Great Northern on heavy-duty flat cars.



Producers of perishable freight such as choice fruit, vegetables and fish depend upon Great Northern's modern refrigerator car service.

Transport of iron ore is a "special delivery" job for Great Northern. Several thousand of these 75-ton-capacity ore cars are in service on Minnesota's world famed Iron Range.

Great Northern pioneered quantity construction of plywood-steel freight cars. Light, but sturdy, these cars are ideal for grain, forest products and merchandise.